Go on a **POWER TRIP** with **FURUNO**
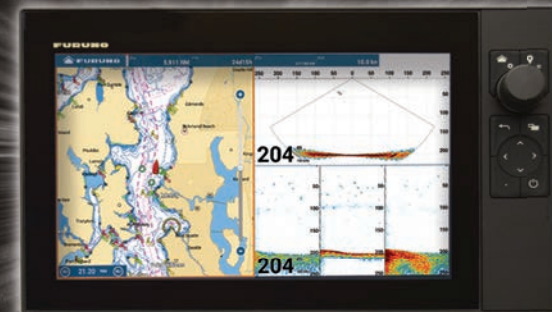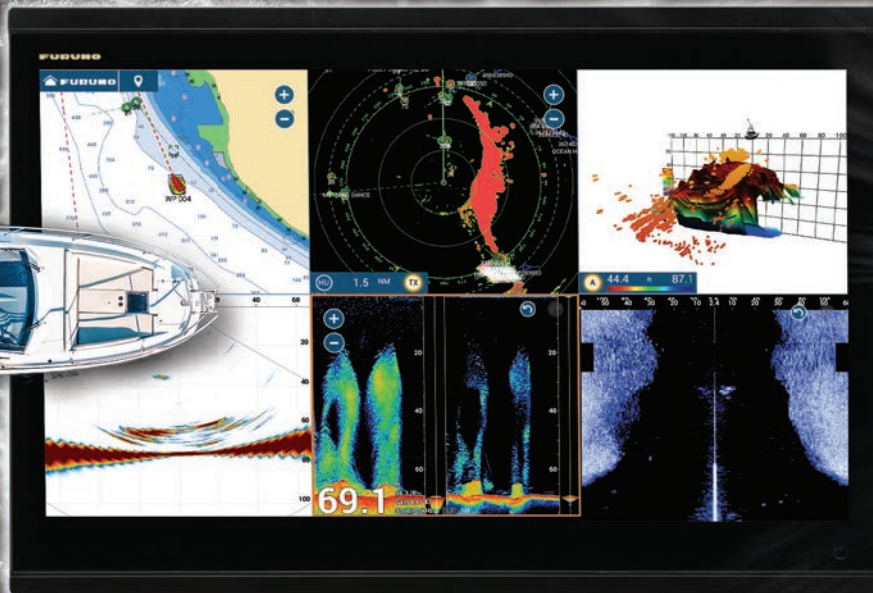
Go on a
POWER TRIP
with the most powerful
MFD series available.

NEW!

NEW!

TZT16F/19F and TZT22X/24X - 16", 19", 22", & 24" ALL GLASS IPS DISPLAY

Experience navigation like never before with lightning-fast 16", 19", and the all-new TZtouchXL 22" and 24" Multi Function Displays. These sleek, edge-to-edge glass displays deliver ultra-clear images from any angle, making your helm functional and versatile while adding style and ergonomics. Imagine having one or multiple units on your helm, giving you a conning station that makes it feel like you're the captain of a sci-fi spaceship!

TZT9F/TZT12F - 9" & 12" HYBRID CONTROL IPS DISPLAY

Hybrid controls enhance these 9" & 12" Multi Function Displays, making them easy and intuitive to use under any sea conditions. Rest your hand on the RotoKey™ as you crash through the waves, and navigate easily to your charted destination.

It has all
THE POWER
you've wanted...and more.

· Powerful hexa-core processor for lightning-fast response
· Built-in Dual Channel 1kW TruEcho CHIRP™ (TZT12F/16F/19F only) & CW Fish Finder
· High-power 2/3/5kW* TruEcho CHIRP™ DFF3-UHD
· Power-packed 100W & 200W NXT Solid-State Doppler Radars (DRS12ANXT and DRS25ANXT)
· 24" and 19" Solid-State Doppler Radome Antenna options (DRS4DNXT and DRS2DNXT)
· Deep water Multibeam Sonar for up to 300m depth & 200m side scan, with Personal Bathymetric Generator (PBG)
· Game-changing Fish-It, Drift-It, & Follow-It features designed to save time, fuel, and increase fish catch
· NEW TZtouchXL 24" & 22" all-glass IPS displays with 6-way split window option
· All-glass 19" & 16" multi touch IPS display for maximum brightness
· Hybrid Control 12" and 9" display with RotoKey™ and buttons for added accessibility
· Pin Code Lock - require an optional password to access your TZtouch3 MFD upon startup
· NEW Video Converter Kits stream compatible Sonar and Radar video data directly to TZtouch3 MFDs

*Connect a 5kW or 10kW transducer when using the BT-5 Booster Box; power output is 3kW
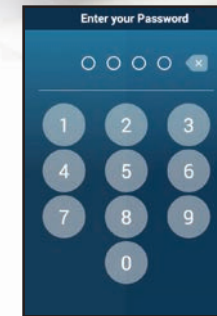
PIN CODE LOCK

The PIN CODE Lock feature allows you to optionally require a four-digit password to be entered upon startup, keeping your data safe against theft.

THE BENCHMARK FOR RADAR

Furuno NXT Solid-State Doppler Radars pack power like never before. From the 25 Watt DRS2DNXT/DRS4DNXT dome to the 200 Watt DRS25ANXT open array, you will get dynamic features like Target Analyzer™, Fast Target Tracking, Bird Mode, and Rain Mode.

(Some features may require additional sensors)

HIGH-POWER TruEcho CHIRP™ NETWORK FISH FINDER

NEW!

Introducing the DFF3-UHD, a high-power TruEcho CHIRP™ Network Fish Finder designed specifically to work with NavNet TZtouch3. This 2kW or 3kW TruEcho CHIRP™ Fish Finder gets you down to the deepest waters to find your catch. You can even connect a 5kW or 10kW transducer!

(BT-5 Booster Box required for 5kW/10kW transducers)

DEEP WATER MULTIBEAM SONAR

Real-time 120° port-starboard up to 200m (over 650 ft.) depth and viewing of the water column and seabed directly under the boat 300m (nearly 1,000 ft). The DFF3D allows you to explore fishing spots and find fish in deep water faster than conventional single beam Fish Finders, plus make your own shaded relief charts with the PBG (Personal Bathymetric Generator) feature.

Because finding your
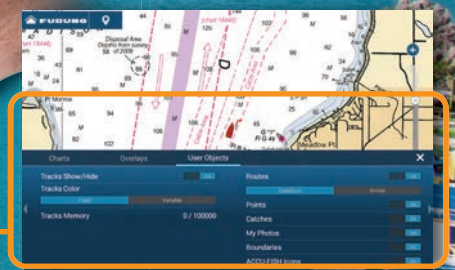**HAPPY PLACE**
shouldn't be difficult.
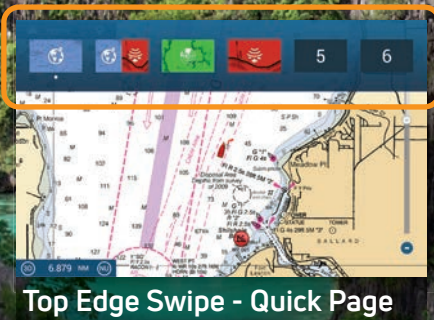
Top Edge Swipe - Quick Page
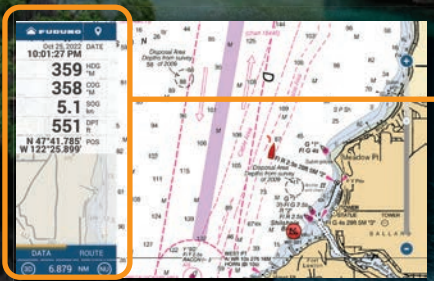
Right Edge Swipe - Shortcut

Left Edge Swipe - NavData

Bottom Edge Swipe - Layers

That's why we made it as
EASY TO USE
as your phone!

We listened to you and worked tirelessly to make TZtouch3 the easiest MFD on the market to use...bar none. With edge-swipe features and single tap menu options, you're never more than a tap or swipe away from what you want to see or do. It's that simple.
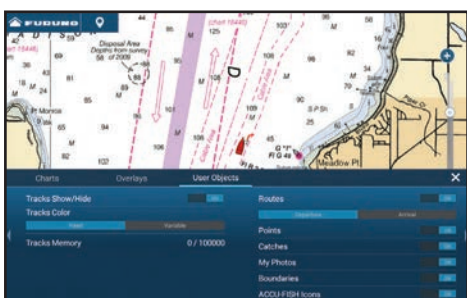
LEFT EDGE SWIPE - NAVDATA

Swipe from the left to bring up your NavData box. Access general Nav Data from the Data tab or App-specific data when on individual pages.
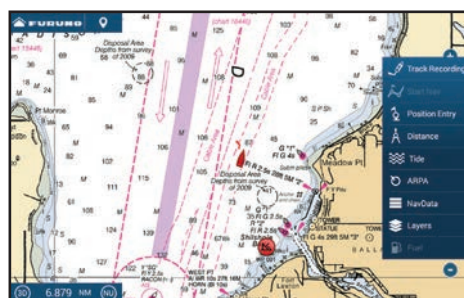
TOP EDGE SWIPE - QUICK PAGE

Swipe down from the top to select your Quick Pages. Think of these as similar to your car stereo presets. Easily set your favorites with a long press.

BOTTOM EDGE SWIPE - LAYERS

Swipe up from the bottom to view App Layers. Toggle commonly used items & layer them on your screen.

RIGHT EDGE SWIPE - SHORTCUT

Swipe from the right of the screen to bring up the menu of often-used functions, such as Tracks, Position Entry, Tides, ARPA, Fuel, CZone, and more.

12" and 9" HYBRID CONTROL DISPLAY

Captains who have smaller boats know that when you are in rough sea conditions, it can be difficult to get an accurate tap on the screen. That's why we made our TZtouch3 12" and 9" MFDs with Hybrid Controls. You get the best of both worlds with a full multi touch display and a handy, built-in keyboard that features a RotoKey™, cursor pad and dedicated buttons.

1. Short press: Home, Long press: Settings
2. Short press: Event, Long press: MOB
3. RotoKey™
4. Short press: Shift Screen Control, Long press: Full Screen
5. Cancel/Center
6. Cursor Pad
7. Short press: Function 1, Long press: Function 2
8. Power/Quick Access Page

When life throws a
CURVE
here's how you stay on course.
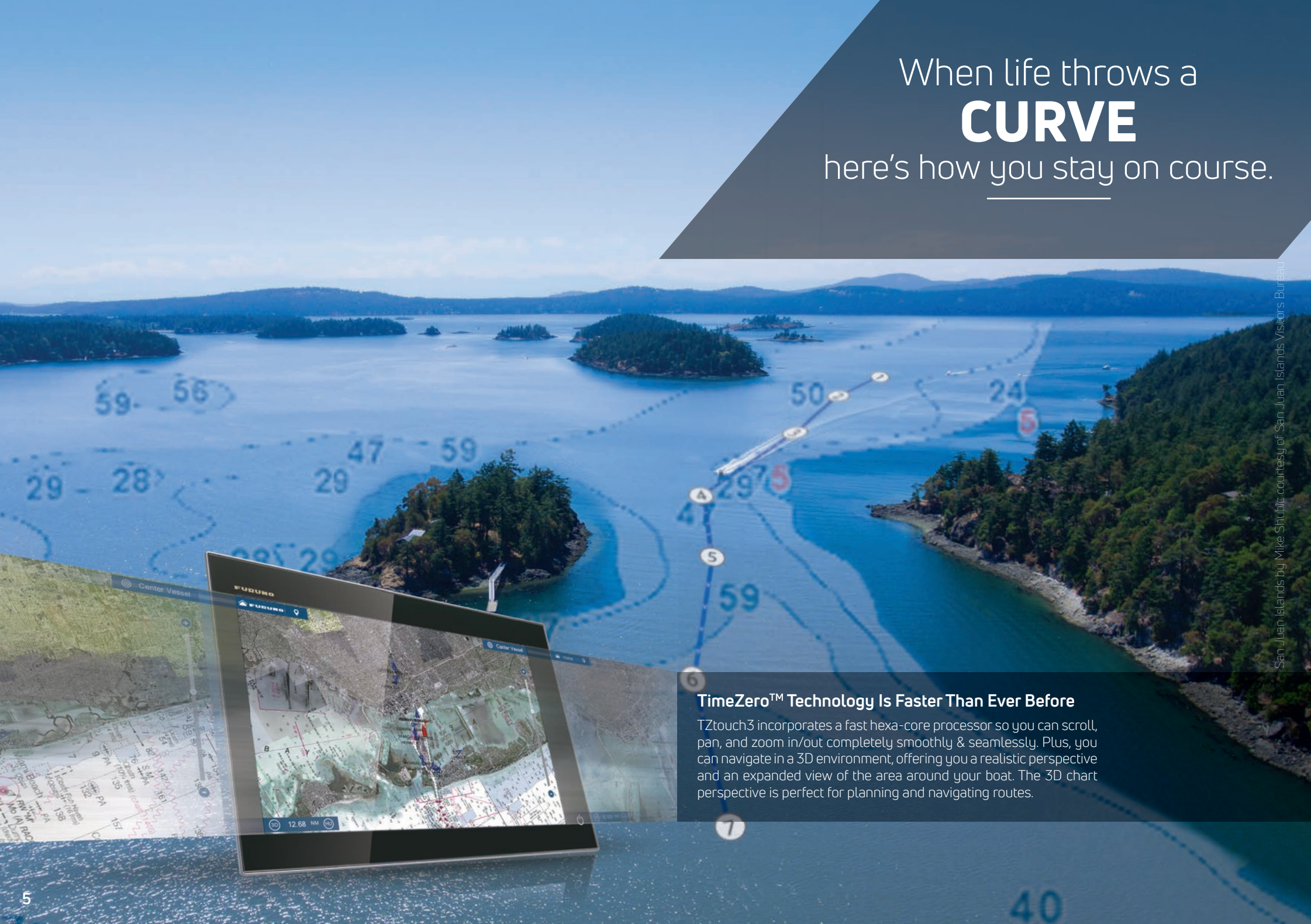
TimeZero™ Technology Is Faster Than Ever Before

TZtouch3 incorporates a fast hexa-core processor so you can scroll, pan, and zoom in/out completely smoothly & seamlessly. Plus, you can navigate in a 3D environment, offering you a realistic perspective and an expanded view of the area around your boat. The 3D chart perspective is perfect for planning and navigating routes.

Here are all the
FEATURES YOU NEED
to make a good cruise great!

You will find them in every harbor around the world: everyday people who refuse to be constrained by how far they can see. The ones who go all in, because of their love for being on the water. They've inspired us to build a Chart Plotter that is not inhibited by standard features. Rather, we've created a Chart Plotter with speed & performance that allows you to pursue what thrills you...on any course you choose.
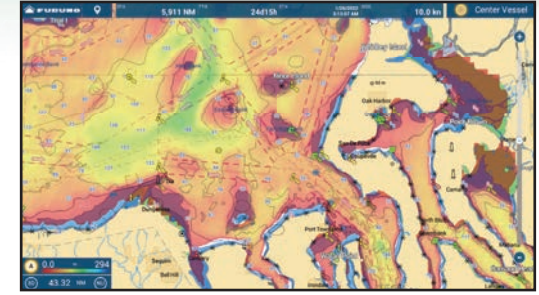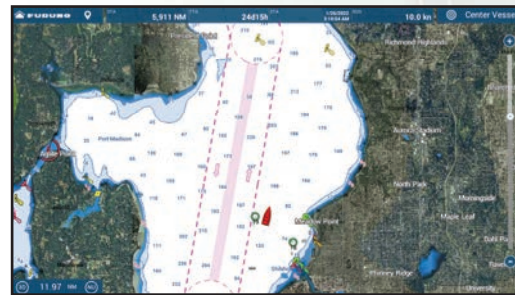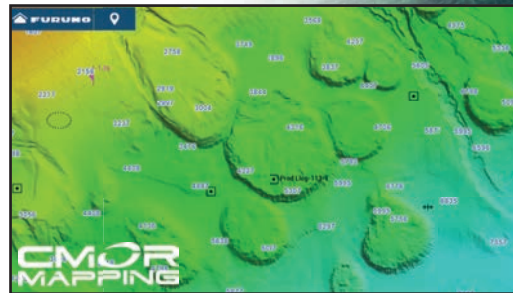
MAPMEDIA VECTOR & RASTER CHART LIBRARY

Freely choose the charts that fit your individual needs. MapMedia brings an extensive library to your TZtouch3 and makes it easy to select raster, vector, or fishing charts. Optional C-MAP vector charts can be easily unlocked. MapMedia cartography integrates cutting edge algorithms with high-resolution image processing techniques to deliver a fusion of digital navigation charts and satellite photography.

SATELLITE PHOTOFUSION™ & CMOR CHARTS (U.S. ONLY)

Satellite photography is included in most MapMedia charts and accessed using 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. CMOR's high-resolution, shaded-relief bathymetric bottom images help navigators identify suitable locations for fishing and diving (U.S. only).

VECTOR & RASTER 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 feature allows you to view water depths at-a-glance with vibrant colors. No more searching for depth numbers, when you can easily set depths to your specified colors.

TZ PC Software   Cloud.MyTimezero.com   TZ iBoat iOS App   TZtouch3

NEVER LOSE WAYPOINTS, ROUTES OR SETTINGS AGAIN WITH TZ CLOUD

Create your routes at home using TZ Navigator, a web browser*, or TZ iBoat iOS App. Then you can retrieve them from the cloud & download to your TZtouch3. Create events on your MFD and retrieve them at home because the data is synchronized automatically & securely to My TimeZero. TZ Cloud also stores marks, routes, boundaries, photos, and catch data!

(*Cloud.MyTimezero.com raster planning charts for US only)

An intelligent
CONNECTION
between boat and captain.

When you're out on the water, you want to be on top of your game. So, you train like the pros. You prep all of your equipment. And before you head out, you do your homework. The good news, TZtouch3 just made it all easier with TZ Cloud and the new TZ First Mate App.

NavNet VIEWER APP

Conveniently view instruments on your smart devices over the Wireless LAN network. Essential nav data such as Depth, Temp, Wind, and COG, as well as Engine info are accessible from the palm of your hand.

NavNet REMOTE APP

Take full control of your TZtouch3 in a whole new way. The NavNet Remote app allows you to operate and view your system with your smart devices remotely.

NavNet CONTROLLER APP

Also available is the NavNet Controller App, which allows you to control your TZtouch3 with a scroll pad, cursor pad, and dedicated keys.

GET IT ON Google Play

Download on the App Store
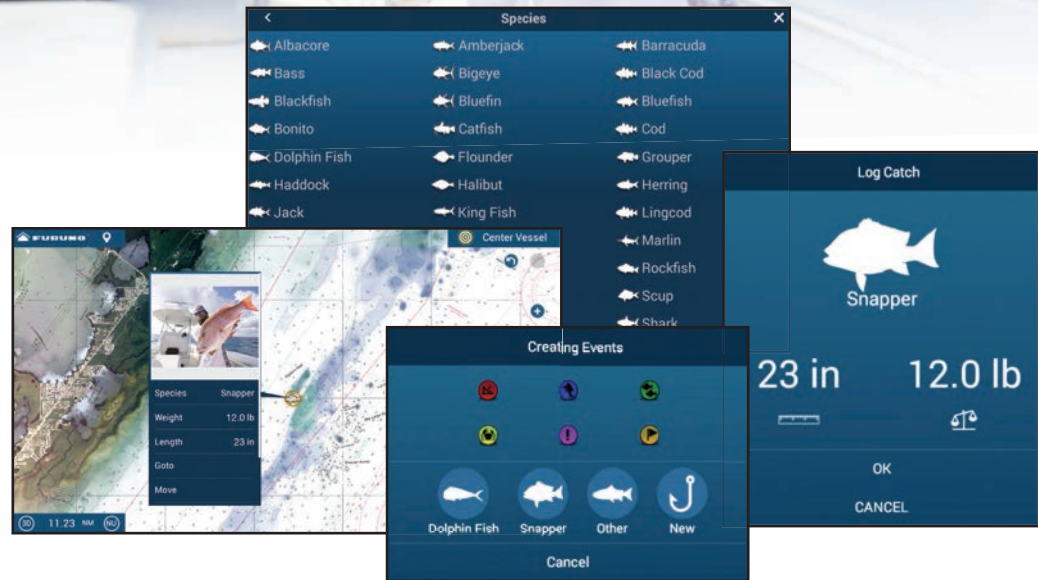
TZ FIRST MATE APP KEEPS TRACK OF YOUR CATCH & LOCATION

You put in blood, sweat, and tears finding the perfect hot spot, and guess what, it paid off! Wouldn't it be nice to make a note of what you caught and how big it was? Now your TZtouch3 display can do that when you drop an event mark. Choose the species, enter length & weight, and even take a picture with your phone. View & edit the marks on your smart devices with the TZ First Mate App, TZ PC Software, or TZ iBoat.

Take your adventure
FARTHER
knowing you will get home safe.

GO BOLDLY KNOWING THAT YOUR RADAR WILL GET YOU & YOUR FAMILY HOME SAFELY

When you're serious about adventure, you will no doubt find yourself navigating at night, moving cautiously in the fog, and probably dodging the occasional squall. The good news is that you will have Furuno's high-power Radar to guide you every step of the way. Both the NXT Solid-State Doppler and the X-Class Radars have you covered for watching storms with Rain Mode, monitoring hazardous targets with Target Analzyer™ (NXT-only), Fast Target Tracking, and even finding birds with Bird Mode.

More power means
BETTER DETECTION
of all the targets around you!

Are you ready to go on a Radar power trip? Experience high-power Radar and amazing target detection with Furuno's NXT and X-Class Radars. We juiced the power of our NXT Solid-State Doppler Radars to give you outstanding long-distance performance that matches their amazing close range capability.

DRS25ANXT
DRS6AX/DRS12AX/DRS25AX
DRS12ANXT
DRS6ANXT
DRS4DL+
DRS2DNXT
DRS4DNXT

DUAL RANGE MODE (Not available with DRS4DL+)

Simultaneous scanning technology produces a dual progressive scan to display & update two Radar pictures, both long & short range.[1] Autonomous control over gain & anti-clutter can be performed on each Radar presentation.[2] This can be used to have one screen with the gain set to locate birds and buoys, while you use the other Radar screen to navigate.
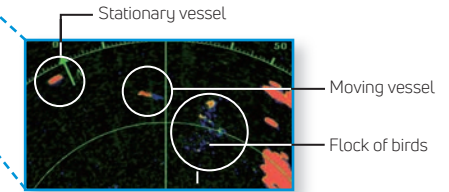
[1]: Limited to 12NM on DRS-NXT Series, Combination Screens i.e. Bird Mode + Bird Mode, etc. not available

[2]: Auto Sea Mode, Gain, Rain/Sea Clutter not autonomous in Dual-Range Mode on DRS-NXT series
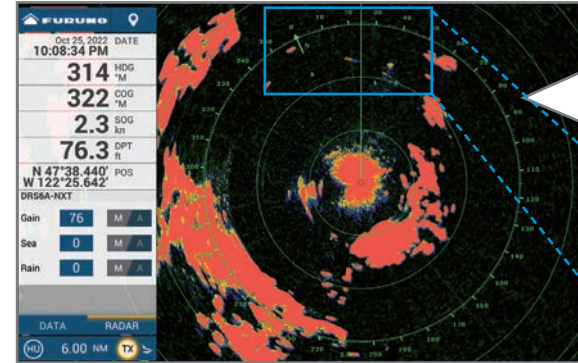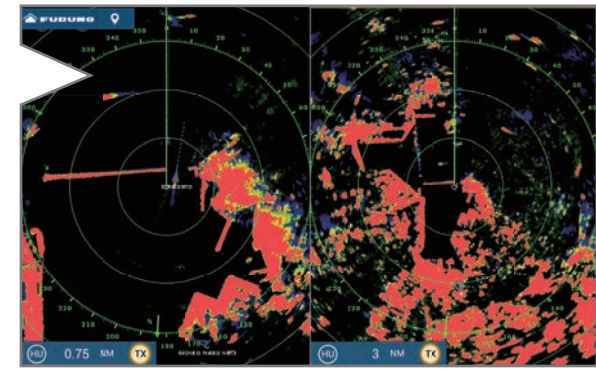
BIRD MODE

Bird Mode works by automatically adjusting the gain & sea settings for optimal visibility.

Stationary vessel
Moving vessel
Flock of birds

TARGET ANALYZER™

Target Analyzer™ function displays targets that are approaching your vessel & automatically changes color to help you identify potentially dangerous targets. Green echoes are targets that are stationary or are moving away from you, while red echoes are hazardous targets that are moving towards your vessel. Target Analyzer™ improves situational awareness and can increase safety by showing you which targets to watch (Available with NXT Radars only).
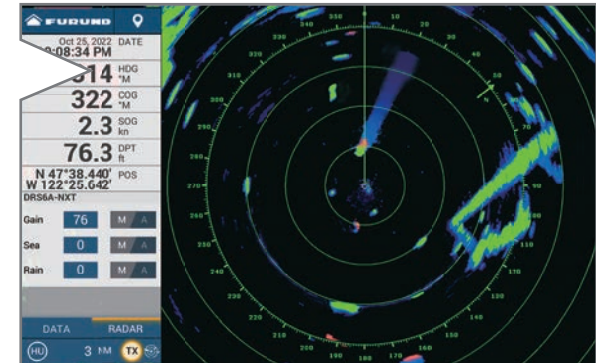
AIS TARGET TRACKING

When connecting an FA-series AIS or FM4800/4850 to your TZtouch3, AIS targets can be displayed on the Radar or Chart Plotter screen. The Automatic Identification System (AIS) improves safety during travel by sharing the status & position of your vessel with other AIS-equipped vessels nearby (Radar heading required).

NavNet TZtouch3/TZtouchXL Network/Products Lineup

RADAR

Radar Sensor
DRS4DL+/DRS2DNXT/DRS4DNXT
DRS6A/12A/25ANXT
DRS6A/12A/25A X-Class
Ethernet

FISH FINDER

FISH FINDER Internal

External Fish Finders can also be connected to TZtouch3. You can select which one to use from the settings menu.

Fish Finder
DFF1-UHD/DFF3
Ethernet

Bottom Discrimination Fish Finder
BBDS1
Ethernet

Multibeam Sonar
DFF3D
Ethernet

TruEcho CHIRP™ 2/3kW*1
DFF3-UHD
NEW!

AIS

AIS Receiver
FA40
NMEA2000 | NMEA0183

Class-B AIS Transponder
FA70
NMEA2000 | NMEA0183

Class-A AIS Transponder
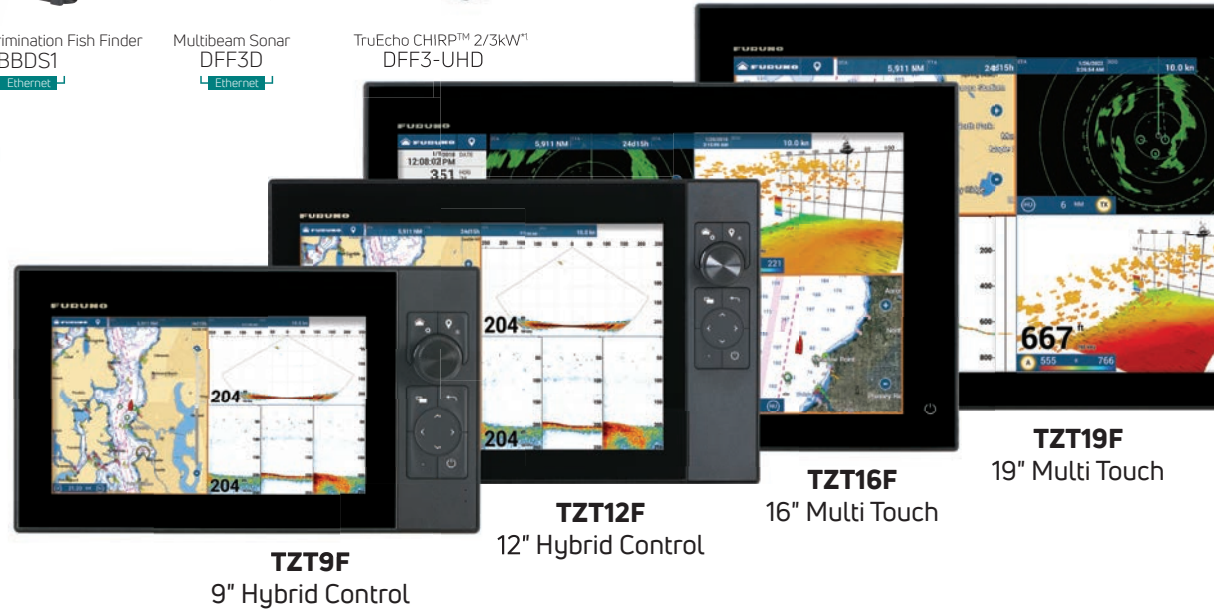**FA170**
NMEA0183 | Ethernet

WEATHER/ PC PLOTTER

TZ PC Software
Ethernet

Network Weather Facsimile Receiver
FAX30
Ethernet

Network Satellite Weather and Radio Receiver
BBWX4*2
Ethernet

TZT9F
9" Hybrid Control

TZT12F
12" Hybrid Control

TZT16F
16" Multi Touch

TZT19F
19" Multi Touch

OTHERS

NavNet Command Center
3rd Party Compatible Apps (v2.01*)   *More apps planned

QUICK SPA
LUMISHORE
victron energy
shadow-caster LED LIGHTING
SEAKEEPER
OSCAR
Ethernet

Marine Entertainment System
Fusion APOLLO Series, etc.
Ethernet | NMEA2000

IP Camera
Ethernet

Analog Camera
Video

Thermal Camera
Ethernet | Video

CZONE
Digital Switching System
CAN bus

GPS Internal Antenna
Internal GPS Antenna
TZT9F/TZT12F/TZT16F

NMEA2000 Certified

NavNet TZtouch3 is NMEA2000 certified. NMEA2000 offers improved data transfer rates and true plug-and-play operation.

CONVERTER

NMEA Data Converter
IFNMEA2K2
CAN bus | NMEA0183

Analog NMEA Data Converter
IFNMEAFI
CAN bus | Analog

IP Video Stream Encoder (VGA)
VICSH8L
NEW!
Video | Ethernet

IP Video Stream Encoder (HDMI)
VIHDMI
NEW!
Video | Ethernet

*1 Optionally connect a 5kW or 10kW transducer to DI-FFAMP using BT-5; DI-FFAMP not compatible with TZT9F.
*2 SiriusXM weather coverage is currently available only in U.S. and Canada. SiriusXM subscription required.
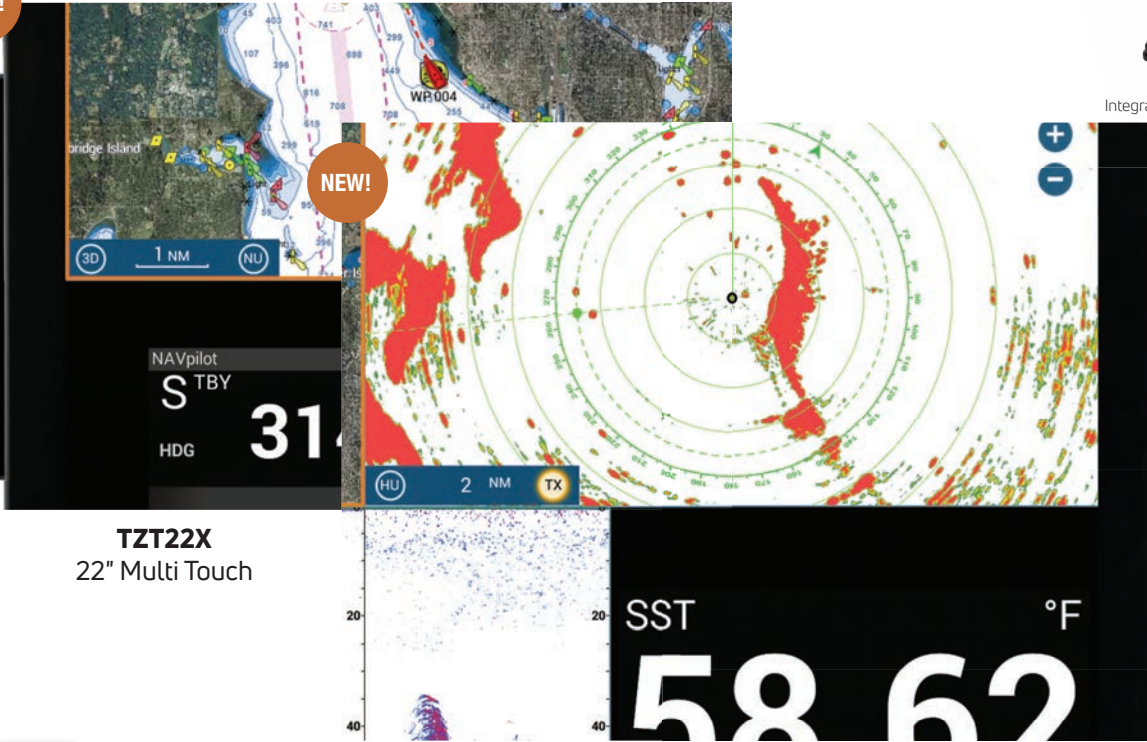
NAVnet Connect

NAVnet TZ touch XL

AUTOPILOT

AutoPilot **NAVpilot 300**
NMEA2000

AutoPilot **NAVpilot 711C**
NMEA2000 | NMEA0183

COMPASS

Integrated Heading Sensor **PG700**
CAN bus

Satellite Compass **SCX20**
NMEA2000

SC33
NMEA2000 | NMEA0183

Satellite Compass **SC70**
CAN bus | NMEA0183

GPS

GPS/WAAS Receiver Antenna **GP330B**
NMEA2000

GPS Navigator **GP33**
CAN bus | NMEA0183

GPS Internal Antenna
External GPS antennas & navigators can also be connected to TZtouch3. You can select which one to use from the settings menu.

SENSOR

Ultrasonic Weather Station **200WX**
CAN bus

Depth/Speed/Temp Sensor **DST810** & other Smart Sensors for depth/speed/temp
CAN bus

INSTRUMENT

Wind Transducer - Analog **FI5001/L**[*4]
NMEA2000

Instrument **FI70**
CAN bus

OPTION

Touch Encoder Unit **TEU001B (Black)** **TEU001S (Silver)**

Enhanced Remote Controller **MCU006**
USB

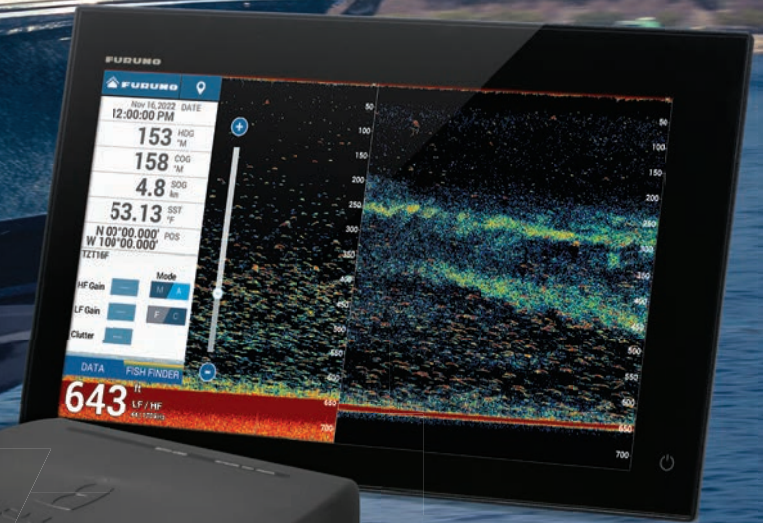Remote Control Unit **MCU004**
USB

Remote Control Unit **MCU002**
USB

Keyboard **MCU005**
Ethernet

NEW!

TZT22X 22" Multi Touch

NAVpilot
S TBY
HDG
314

TZT24X 24" Multi Touch

SST °F
58 62

FISH FINDER Internal
Internal 1kW TruEcho CHIRP™ Fish Finder*
*Dual Channel for TZT12F/TZT16F/TZT19F only, Single Channel for TZT9F only

Interface Connection Legend

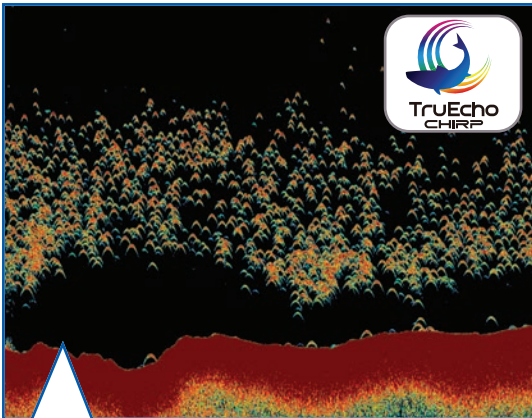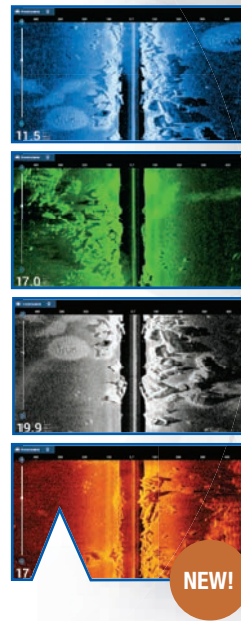|	
Ethernet	Ethernet 100 Base-T Connection
CAN bus	Can bus or NMEA2000 Connection
NMEA0183	NMEA0183 Connection
Video	Video Connection
Analog	Analog Connection
USB	USB Connection

GO DEEPER WITH MORE POWER THAN YOU THOUGHT WAS POSSIBLE

You spoke. We listened. And now we delivered! TZtouch3 incorporates a powerful internal 1kW TruEcho CHIRP™ Fish Finder. For many, this is the perfect Fish Finder, but for some, they need even more. So, we proudly bring you the **DFF3-UHD**, a high-powered 2kW/3kW Network TruEcho CHIRP™ Fish Finder that connects to the TZtouch3 Network. But if that's not enough, the DFF3-UHD allows you to connect a 5kW or 10kW transducer with the BT-5 Booster Box. Go big or go home!

NEW!

DFF3-UHD High-Power TruEcho CHIRP™ Network Fish Finder

We're pushing fishing
TECHNOLOGY
to its limits and it feels good.

Welcome to the future of high-powered, deep dropping, full-featured Fish Finders. We're not talking about your daddy's Fish Finder. We took our commercial fishing know-how and put it into TZtouch3, giving you capabilities that a recreational line of Fish Finders has never seen. Reach unfathomable depths with Deep Impact!

NEW!

CHIRP Side-Scan is built-in to TZtouch3

Furuno's CHIRP Side-Scan for NavNet TZtouch3 scans both port and starboard, allowing boaters to see the shape of bottom structure in high definition. CHIRP Side-Scan reveals the shape of fish targets and fish-hoarding structure up to 750 ft (228 meters) off each side of your vessel. It's ideal for fishing or simply showing hidden, uncharted bottom structure in rich detail in 1/4, 1/2, or full-screen presentations on TZT12F, TZT16F, or TZT19F. Available with Thru-hull, Paired, or Transom Mount Transducer.

NEW!

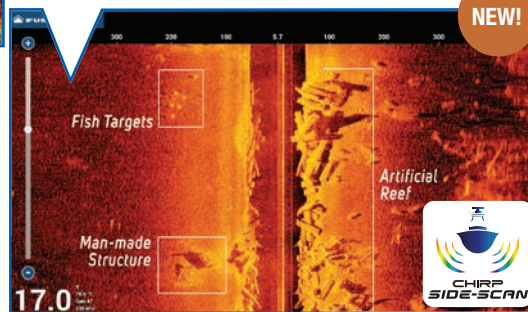### FIND MORE FISH WITH TruEcho CHIRP™

The internal 1kW TruEcho CHIRP™ Fish Finder inside TZtouch3 is designed to operate across a wide range of frequencies utilizing a broadband transducer and delivers significant advantages to signal clarity & target definition. Due to the constant sweeping of frequencies, it is capable of gathering more & higher quality data than traditional Fish Finders. The TZT9F is a single-channel, while the TZT12F/16F/19F all utilize a dual-channel 1kW TruEcho CHIRP Fish Finder.
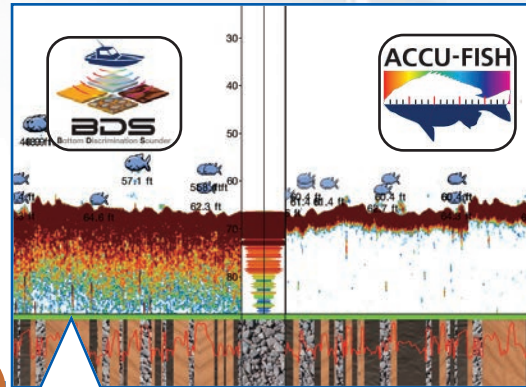
(Software ver. 3.50 or higher required for TZtouch3; ver. 9.50 or higher required for TZT2BB. CHIRP Side-Scan can be displayed on TZT2BB, TZT9F, TZT22X, and TZT24X when networked to a TZT12F, TZT16F, or TZT19F.)

ADDITIONAL FISH FINDER OPTIONS

In addition to the built-in Fish Finder, you can also connect the DFF3-UHD, BBDS1, OR DFF3D via Ethernet.

BOTTOM DISCRIMINATION DISPLAY* & ACCU-FISH™ FISH SIZE ANALYZER**

Bottom Discrimination provides detailed information about the composition of the seabed & organizes it into four different categories: Rocks, Gravel, Sand, and Mud.

The ACCU-FISH™ algorithm analyzes echo returns in order to compute individual fish size. The algorithm is capable of calculating fish size ranging from 10 cm up to 199cm (>4" to <78") long. Fish depth can also be displayed.

*Feature works with certain transducers. Check to ensure your transducer is compatible.
**In some instances, fish size indicated on the TZtouch3 may differ from its actual size. Please carefully read the operator's manual before utilizing this feature.

DRIFT-IT, FISH-IT... CATCH IT

Tap on a fishing location such as a pinnacle, wreck, artificial reef, point, or any place on the screen to activate. Fish-It stays active until you tap the stop sign on the top display.

Once a Fish-It point has been selected, the Drift-It feature can be activated on the data bar. Once activated, Drift-It automatically calculates your drift starting location to allow a perfect drift over the Fish-It spot.
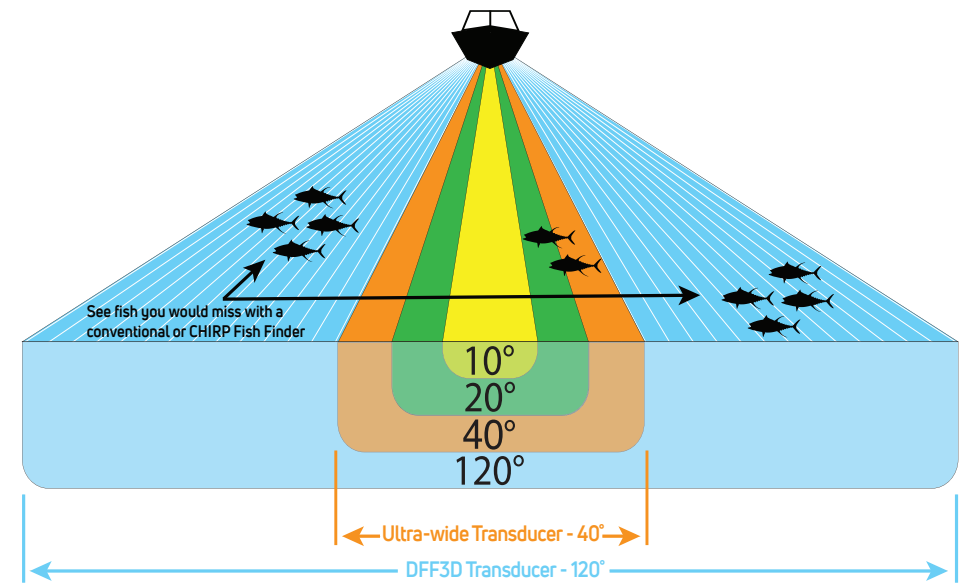
NEW!
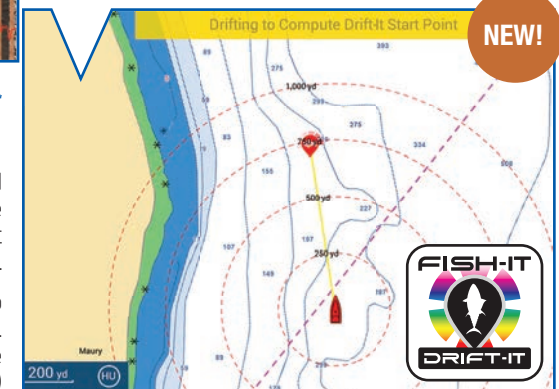
Drift-It will save time and fuel by eliminating the guesswork in determining vessel drift in challenging wind and current conditions.

14

More power to see 120°
PORT-STARBOARD
giving you an edge over the competition.

Normal down-sounding Fish Finders have a beam angle of 40° or less. But with the DFF3D Multibeam Sonar, you see 120° port-starboard for 200m (650+ ft). Plus, with the power of the DFF3D, you can see fish directly below the boat 300m (nearly 1,000ft). When you match this with the Deep Impact TruEcho CHIRP™, you'll have the ultimate fishing machine!

See fish you would miss with a conventional or CHIRP Fish Finder

10°
20°
40°
120°

Ultra-wide Transducer - 40°
DFF3D Transducer - 120°

The DFF3D Multibeam Sonar operates at 165kHz, giving you fantastic depth penetration while still displaying echoes in high-resolution. Compared to a 40° ultra-wide transducer, you will see 3-times the area around your boat, helping you to find fish you might have otherwise missed. Plus, you can see which side of the boat they are on!


NEW!
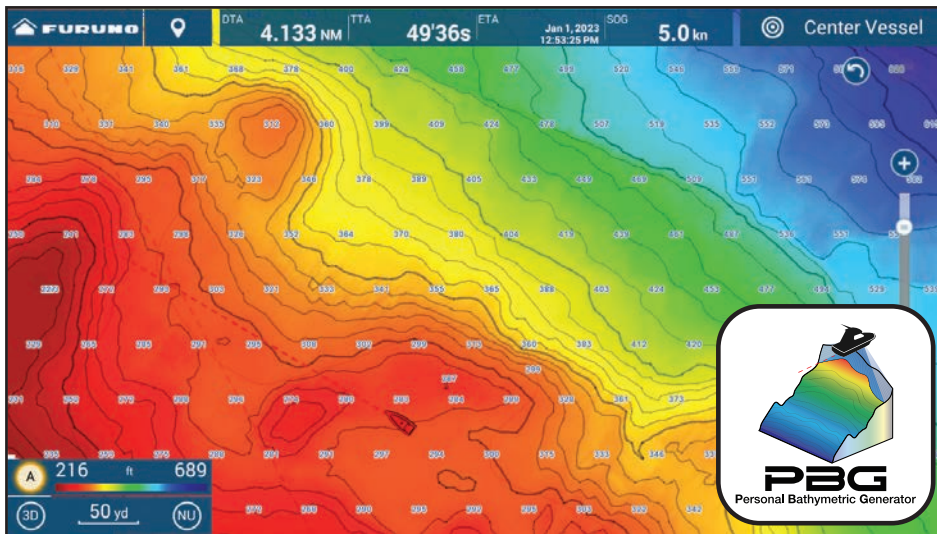
BATHYMETRIC SHADED RELIEF MAPS

Quickly create your own PBG (Personal Bathymetric Generator) Shaded Relief Maps using TZtouch3 and the DFF3D. Instead of just one depth per point, the DFF3D provides 50 points. Discover new fishing hot spots and save them to the cloud, so you can return again and again! Bottom images are drawn with shaded relief, depth contours, and variable colors, making it easy to identify hidden structure and ridges that hold fish in a simple, easy-to-interpret presentation. Multiple color palettes are available, including the ability to show contour lines only. The area each ping covers is approximately twice the depth at the time of recording, so at a depth of 100 meters, a 200 meter-wide area is displayed and recorded to your NavNet TZtouch3 MFD.
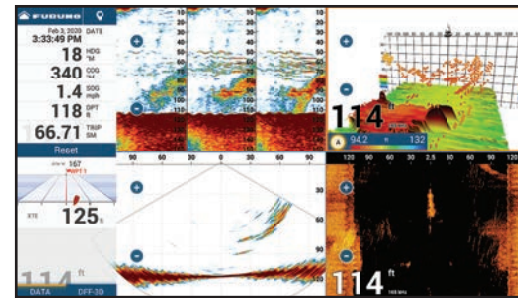
USE DFF3D WITH YOUR FISH FINDER

This is a powerful combination that helps you get on the fish like never before. Use your standard Fish Finder on low-frequency to go deep (left side of the screen) and then use the DFF3D for your high-frequency to see fish in the water column. With the 3D History and Triple Beam Modes, you can easily see which side of the boat the fish are located, so you know where to drop your line.
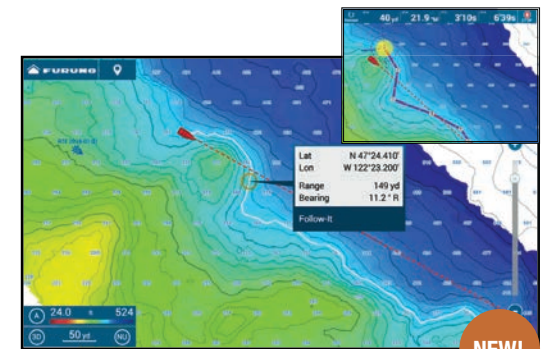
NEW FOLLOW-IT FEATURE

Leverage your recorded PBG data like never before. Now you can create a constant depth route from the PBG data, allowing you to select Follow-It from the menu and send it to your NAVpilot Autopilot. Then the NAVpilot will automatically follow the depth route all the way around a ridge or trough. This is particularly useful when you want to keep your bait at a certain depth while trolling without having to adjust your reel.

(Software ver. 3.5 or higher required for TZtouch3; ver. 9.5 or higher required for TZT2BB.)

Build the ultimate
NAVIGATION SUITE
customized to your specific needs.

The beauty of NavNet TZtouch3 is its scalability - systems can be as big or small as you need. Add, change or remove AIS, VHF, Compass, Weather and other sensors as needed to dial in your dashboard, whether fishing, cruising or sailing.

MARINE WEATHER FORECASTING

The TZtouch3 weather tool is completely free & easy to use, giving you unlimited access to weather forecasts worldwide 24 hours a day provided by NavCenter. Select the coverage you want, what type of data you need and for what time period, then you simply download the data.

Also available on TZtouch3 is the BBWX4 SiriusXM Satellite Weather Receiver. Get up-to-date weather info/forecasting, plus play your favorite SiriusXM Satellite Radio channels.

(U.S. & Canada only)

FA40 & FA70 AIS RECEIVER & TRANSPONDER

The FA40/70 AIS receives the vessel name, call sign, position, COG, SOG, and other useful information from surrounding vessels. The FA70 is a Class-B+ AIS that transmits your vessel information at higher power & faster rates than typical Class B units for added awareness. SOTDMA guarantees an AIS time slot allocation, making you visible in congested waters.
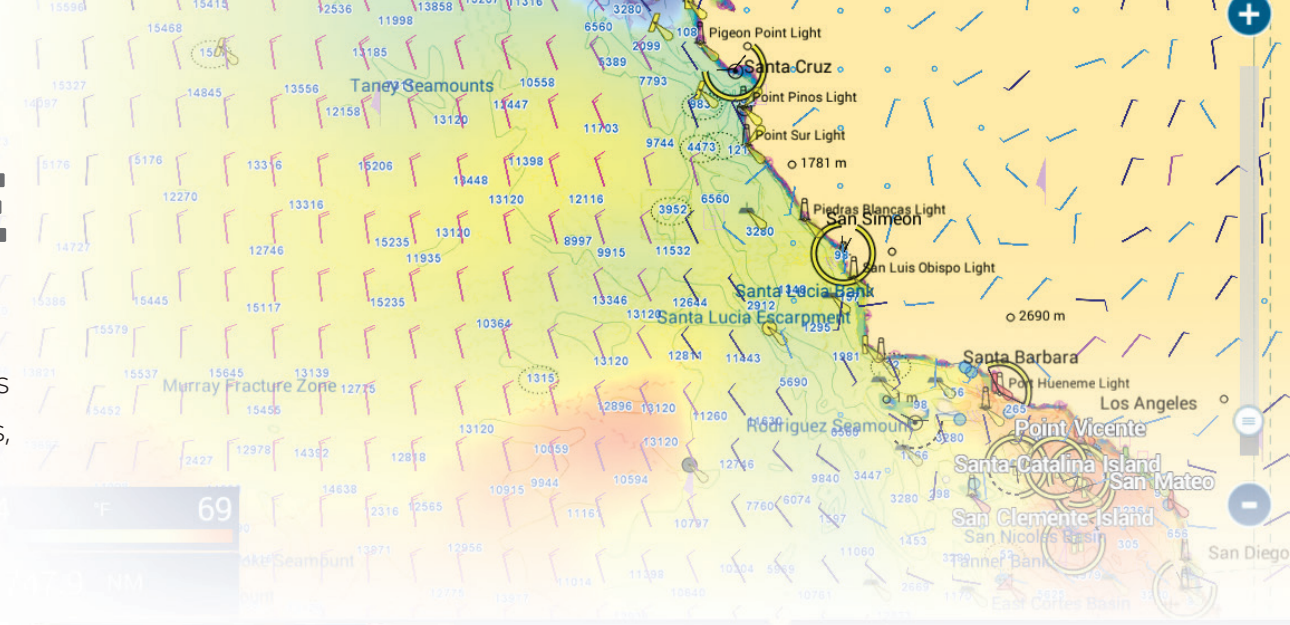
FM4800/4850 VHF/DSC/GPS/AIS/HAILER

The FM4800/4850 is a marine VHF Radiotelephone with built-in Class D DSC, GPS Receiver*, AIS Receiver, and Simplified Loud Hailer with intercom. Its built-in AIS Receiver can be used to overlay AIS targets on your TZtouch3 & the GPS receiver can be used for a backup.

* GPS Antenna required for FM4850.

FISH MAPPING BY SIRIUSXM

SiriusXM Fish Mapping provides Fishing Recommendation Areas for up to 6 fish species such as Tuna, Billfish, Swordfish, Kingfish, Wahoo, and Mahi. Fish Mapping also provides information such as Water temperature, SST contours, subsurface temperatures up to 30m, temperature contours, weed lines, plankton concentrations and front strength, sea surface anomalies, etc.

(U.S. & Canada only)

SCX20 SATELLITE COMPASS

The SCX20 enhances the performance of onboard TZtouch3 sensors such as Radar, Chart Plotter, Fish Finders, Sonar, and Autopilot. The unprecedented quad antenna design of the SCX20 makes it capable of calculating extremely accurate heading, pitch, roll, and heave information.

Specifications - NavNet TZtouch3

MODEL	TZT9F	TZT12F	TZT16F	TZT19F	TZT22X	TZT24X
DISPLAY UNIT						
Type	Color TFT multi touch IPS LCD					
Screen Size	9" Wide	12.1" Wide	15.6" Wide	18.5" Wide	21.5" Wide	24" Wide
Screen Resolution	WXGA 1280 x 720	WXGA 1280 x 800	FHD 1920 x 1080	FHD 1920 x 1080	FHD 1920 x 1080	FHD 1920 x 1080
Screen Brightness	1000 cd/m2 (typical)	900 cd/m2 (typical)	1000 cd/m2 (typical)	900 cd/m2 (typical)	1000 cd/m2 (typical)	
Display Colors	16,770,000 colors (Chart Plotter), 64 colors (Radar/Fish Finder)					
Language	Bulgarian, Chinese, Danish, English (USA/UK), Finnish, French, German, Greek, Italian, Japanese, Norwegian, Portuguese, Russian, Spanish, Swedish					
GPS/WAAS						
Receiver Type	GPS: 72 channels, SBAS: 1 channel (C/A mode, WAAS)			-	-	-
Receiving Frequency	L1 (1575.42 MHz)			-	-	-
Time to First Fix	100 s (cold start)			-	-	-
Accuracy	10 m (GPS), 7 m (MSAS), 3 m (WAAS)			-	-	-
Position Update Interval	100 ms or 10 Hz			-	-	-
CHART PLOTTER						
Cartography	MapMedia mm3d chart (C-MAP/NOAA) and CMOR capable (U.S. only)					
Memory Capacity	30,000 user points, 100,000 points for ship's tracks, 200 planned routes (500 points per route)					
Alarms	Anchor Watch, XTE, Depth*, Speed, Sea Surface Temperature*, Trip Distance, Fuel Gauge* (*external data required)					
RADAR						
Display Modes	Head-up, North-up* *Heading input required.					
Echo Trails	Interval: 15 s, 30 s, 1 min, 3 mins, 6 mins, 15 mins, 30 mins and continuous (Heading input required)					
Target Tracking	100 ARPA Targets (Radar dependent) with fully automatic target acquisition (Heading input required)					
Radar Alarms	Guard Zone, CPA/TCPA, Trigger, Video, Azimuth, Heading Line					
FISH FINDER						
Transmit Frequency*	CW: 50/200 kHz, CHIRP: 40 kHz to 225 kHz *TZT9F Single-Channel CHIRP only			-	-	-
Transducer	300/600 W or 1 kW* *Matching box MB1100 required for some transducers.			-	-	-
Display Range	2 to 1,200 m; shift 0 to 1,200 m					
Extension Mode	ACCU-FISH™, A-Scope, Auto (Fishing/Cruising), RezBoost™, Bottom Discrimination, TruEcho CHIRP™ with compatible transducer					
Picture Advance	8 steps: x4, x2, x1, 1/2, 1/4, 1/8, 1/16, stop					
Fish Finder Alarms	School of fish, School of fish for bottom lock					
SIDE-SCAN						
Transmit Frequency*	-	CHIRP 220-240 kHz			-	-
Transducer	-	150W each side - Thru Hull 225T-SS904, Transom Mount 225T-TM90, Paired Thur Hull 225T-PR904			-	-
Display Range	750 feet to each side					
Display Colors	Green, Blue, Amber, White					
Display Screen Sizes	Full Screen, 1/2 Screen, 1/4 Screen				Full Screen, 1/2 Screen, 1/4 Screen, 1/6 Screen	
Direct Connect to MFD	Direct connect to TZT12F, TZT16F, TZT19F only; may be networked with TZT9F/TZT22X/TZT24X/TZT2BB					
INTERFACE						
NMEA2000	1 Port					
Input	065280, 126992/993/996, 127237/245/251/257/488/489/505, 128259/267, 129025/026/029/330/038/039/040/041/291/538/540, 129793/794/798/801/802/808/809/810, 130306/310/311/312/313/314/316/577/578, 130817/818/820/822/823/826/827/828/880					
Output	126992/993/996, 127250/251/257/258, 128259/267/275, 129025/026/029/033/283/284/285, 130306/310/311/312/313/314/316					
NMEA0183	1 Serial Output Port					
Output	AAM, APB, BOD, DBT, DPT, GGA, GLL, GNS, GSA, GSV, RMB, RMC, RTE, TTM, VDM, VTG, WPL, XTE, ZDA					
LAN	1 Port (100 BASE-TX)	2 Ports (100 BASE-TX)			1 Port (100 BASE-TX)	
USB	1 Port (USB 2.0) for control unit	1 Port (USB2.0) for touch monitor and control unit	1 Port (USB 2.0) for touch monitor and control unit: 1 Port USB output			
Video I/O	-	Input: 2 Ports (NTSC/PAL) Output: 1 Port (HDMI 720p)	Input: 2 ports (NTSC/PAL) and 1 port HDMI 1920 x 1080p or less (progressive only) Output: 1 port (HDMI 1080p)		Input: 1 port (NTSC/PAL) and 1 port HDMI 1920 x 1080p or less (progressive only) Output: 1 port (HDMI 1080p)	
AUX I/O	2 Ports (Event Switch and External Power Switch)					
SD Card Slot	1 Slot (Micro SDXC, rear)					
Wireless LAN	IEEE802.11b/g/n, Transmit frequency: 2.412 to 2,462 GHz, 11dBm max					
Transducer Connection	1 Port x MJ10 pin	1 Port x MJ12 pin for transducers, 1 Port x MJ7 pin for DI-FFAMP			-	-
ENVIRONMENT						
Temperature (IEC60945)	-15°C to +55° C					
Relative Humidity	93% or less at +40° C					
Waterproofing	IP56					
POWER						
	12-24 VDC					
	2.6 - 1.3 A	2.3 - 1.2 A	4.3 - 2.2 A	4.7 - 2.3 A	5.4 - 2.7 A	7.0 - 3.5 A

Specifications - NavNet TZtouch3 Continued
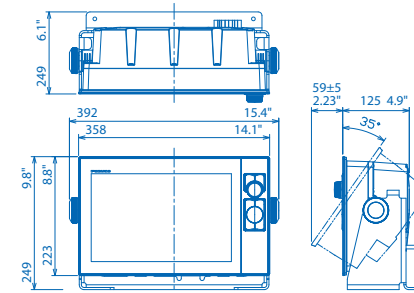
Multi Function Display (Tabletop Mount)
TZT9F   3.5 kg 7.7 lb
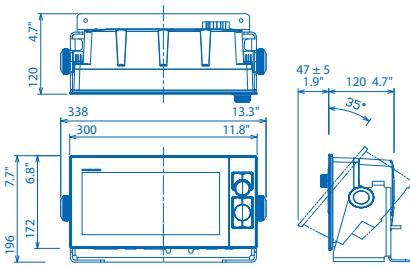
Multi Function Display (Flush Mount)
TZT9F   3.3 kg 7.3 lb
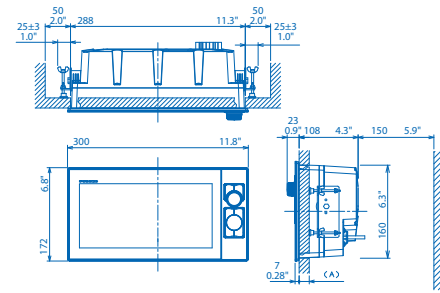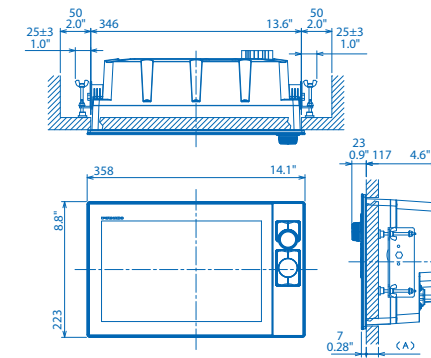

Multi Function Display (Tabletop Mount)*
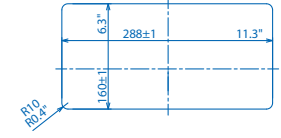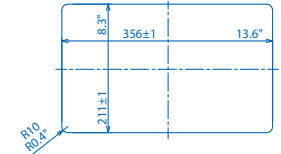**TZT12F   5.6 kg 12.3 lb**

*Bracket is optional

Multi Function Display (Flush Mount)
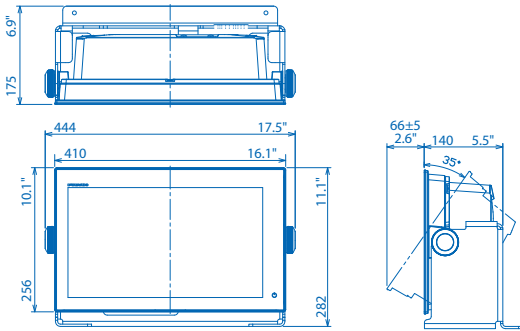**TZT12F   5.1 kg 11.2 lb**

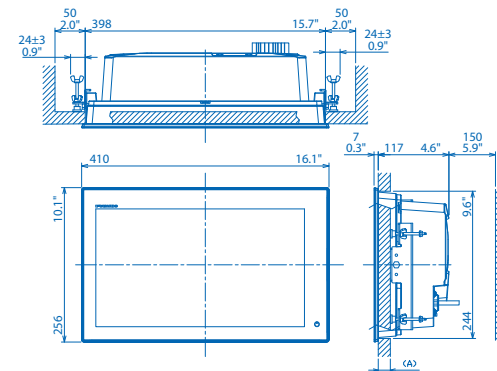### Multi Function Display Flush Mount
TZT9F Cutout Dimension

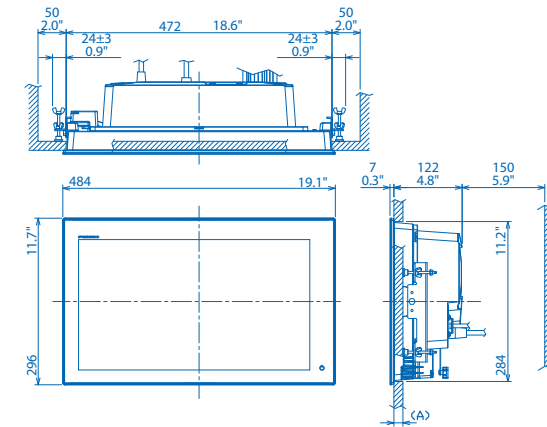### Multi Function Display Flush Mount
TZT12F Cutout Dimension

Multi Function Display (Tabletop Mount)* TZT16F   6.7 kg 14.7 lb
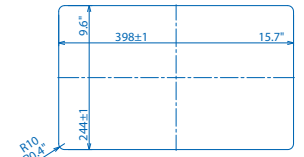

*Bracket is optional

Multi Function Display (Flush Mount) TZT16F   5.9 kg 13.0 lb
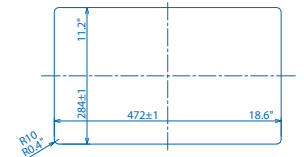

Multi Function Display (Flush Mount) TZT19F   7.8 kg 17.2 lb

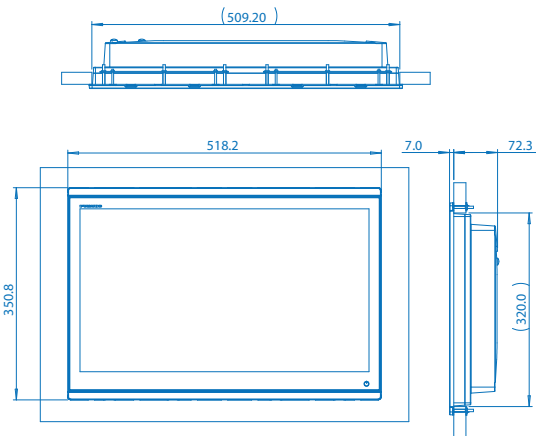### Multi Function Display Flush Mount
TZT16F Cutout Dimension

Multi Function Display Flush Mount
TZT19F Cutout Dimension
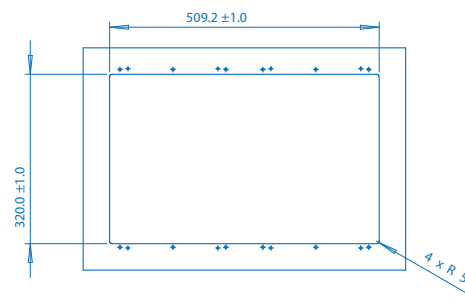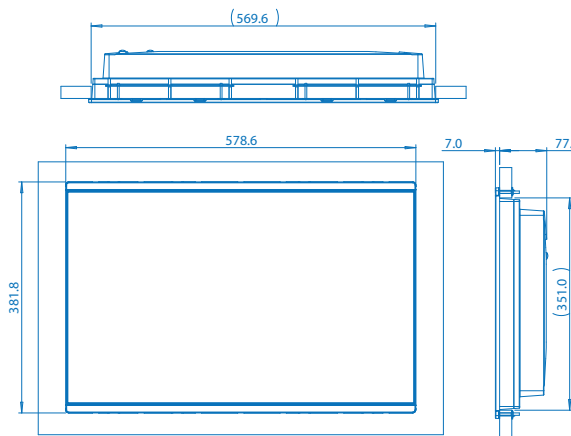

Multi Function Display (Flush Mount) TZT22X   5.9 kg 13.0 lb
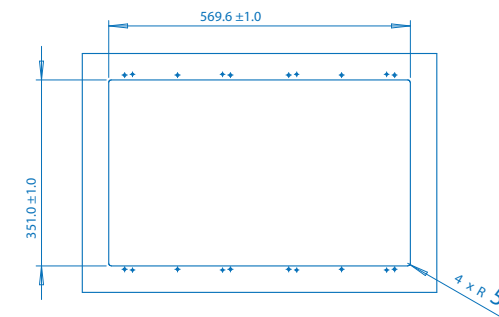

Multi Function Display Flush Mount TZT22X Cutout Dimension

Multi Function Display (Flush Mount) TZT24X   8.35 kg 18.4 lb

Multi Function Display Flush Mount TZT24X Cutout Dimension
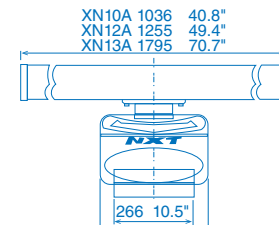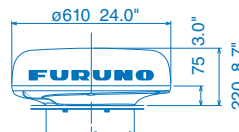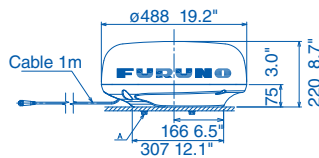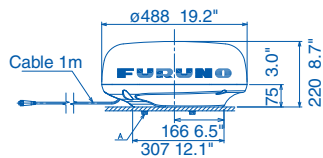
Specifications - NavNet Series Radar

MODEL	DRS4DL+	DRS2DNXT	DRS4DNXT	DRS6ANXT	DRS12ANXT	DRS25ANXT
ANTENNA						
Type	ø480 mm Radome (19")	ø488 mm Radome (19")	ø610 mm Radome (24")	ø1036 mm Open (3.5') 1255 mm Open (4') 1795 mm Open (6')	ø1036 mm Open (3.5') 1255 mm Open (4') 1795 mm Open (6')	ø1036 mm Open (3.5') 1255 mm Open (4') 1795 mm Open (6')
Beam Width — Horizontal	5.2°	5.2° typical (-3 dB) Adjustable between 2.6° and 5.2° (effective with RezBoost™ control)	3.9° typical (-3 dB) Adjustable between 2° and 3.9° (effective with RezBoost™ control)	2.3°/1.9°/1.35° (effective with RezBoost™ control)	2.3°/1.9°/1.35° (effective with RezBoost™ control)	2.3°/1.9°/1.35° (effective with RezBoost™ control)
Beam Width — Vertical	25°	25°	25°	22°/22°/22°	22°/22°/22°	22°/22°/22°
Antenna Rotation Speed	24 rpm	24*/36/48 rpm range coupled or 24 rpm fixed * In dual range mode, speed is limited to 24 rpm				
RF TRANSCEIVER						
Frequency	9410 ± 30 MHz	CH1: 9380 MHz (P0N), 9400 MHz (Q0N) CH2: 9400 MHz (P0N), 9420 MHz (Q0N) CH3: 9420 MHz (P0N), 9440 MHz (Q0N)				
Pulselength & PRR	S: 0.08 µs/360 Hz (0.0625 to 0.5 NM) M: 0.3 µs/360 Hz (0.75 to 2 NM) L: 0.8 µs/360 Hz (3 to 36 NM)	P0N: 0.08 µs to 1.2 µs/1100 Hz Q0N: 5 µs to 18 µs/1100 Hz		P0N: 0.04µs to 1.2µs/ 700Hz to 2000Hz Q0N: 5µs to 48µs/ 700Hz to 2000Hz		
Peak Output Power	4 kW	Solid-State, 25 W			Solid-State, 100 W	Solid-State, 200 W
Range Scales	0.0625 to 36* NM	0.0625 to 48* NM * In dual range mode, range is limited to 12 NM		0.0625 to 72* NM * In dual range mode, range is limited to 12 NM	0.0625 to 96* NM * In dual range mode, range is limited to 12 NM	
Bearing Accuracy	±1°					
INTERFACE						
Ports	LAN: 1 port, Ethernet, 100Base-TX RJ45					
ENVIRONMENT						
	Temperature: -25°C to +55°C, Waterproofing: IPX6	Temperature: -25°C to +55°C, Waterproofing: IP26		Temperature: -25°C to +55°C, Waterproofing: IP56		
POWER SUPPLY						
	12-24 VDC, 2.1-1.0 A	12-24 VDC, 2.5-1.3 A		12/24 VDC, 9.5/5.0 A	24 VDC, 5.0 A	24 VDC, 5.6 A

19" Radome Radar Sensor DRS4DL+ 5.7kg 12.6 lb

19" Radome Radar Sensor DRS2DNXT 6.5 kg 14.3 lb

24" Radome Radar Sensor DRS4DNXT 7.3kg 16.1 lb

3.5 ft Open Array NXT Radar 22kg 48.5 lb
4 ft Open Array NXT Radar 25kg 55.1 lb
6 ft Open Array NXT Radar 27kg 59.5 lb

XN10A 1036 40.8"
XN12A 1255 49.4"
XN13A 1795 70.7"

Cable 1m — ø488 19.2" — 75 3.0" — 220 8.7" — 166 6.5" — 307 12.1"

Cable 1m — ø488 19.2" — 75 3.0" — 220 8.7" — 166 6.5" — 307 12.1"

ø610 24.0" — 75 3.0" — 220 8.7"

266 10.5"

Specifications - NavNet Series Radar Continued

	DRS6A X-Class	DRS12A X-Class	DRS25A X-Class
	ø1036 mm Open (3.5') 1255 mm Open (4') 1795 mm Open (6')		ø1255 mm Open (4') 1795 mm Open (6')
	2.3°/1.9°/1.35°		1.9°/1.35°
	22°/22°/22°		
	24/36/48 rpm range coupled or 24 rpm fixed		
	9410 ±30 MHz		
	0.08 µs/3000 Hz (0.0625 to 0.75 NM) 0.15 µs/3000 Hz (1 to 1.5 NM) 0.3 µs/1500 Hz (2 NM) 0.5 µs/1000 Hz (3 to 4 NM) 0.8 µs/600 Hz (6 to 9 NM) 1.2 µs/600 Hz (12 to 64 NM) 1.2 µs/550 Hz (72 to 96 NM)		
	6kW	12kW	25kW
	0.0625 to 96 NM		
	±1°		
	LAN: 1 port, Ethernet, 100Base-TX RJ45		
	Temperature: -25°C to +55°C, Waterproofing: IP56		
	24 VDC, 4.0 A	24 VDC, 4.5 A	24 VDC, 5.6 A

3.5 ft Open Radar Sensor DRS6A X-Class   20.0 kg 44.1 lb
4 ft Open Radar Sensor DRS6A X-Class   21.0 kg 46.3 lb
6 ft Open Radar Sensor DRS6A X-Class   23.0 kg 50.7 lb
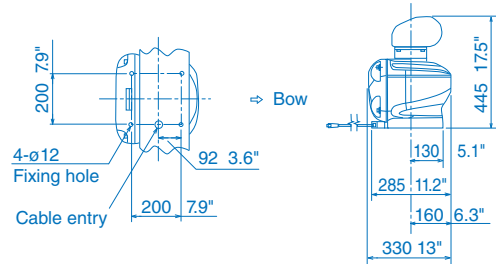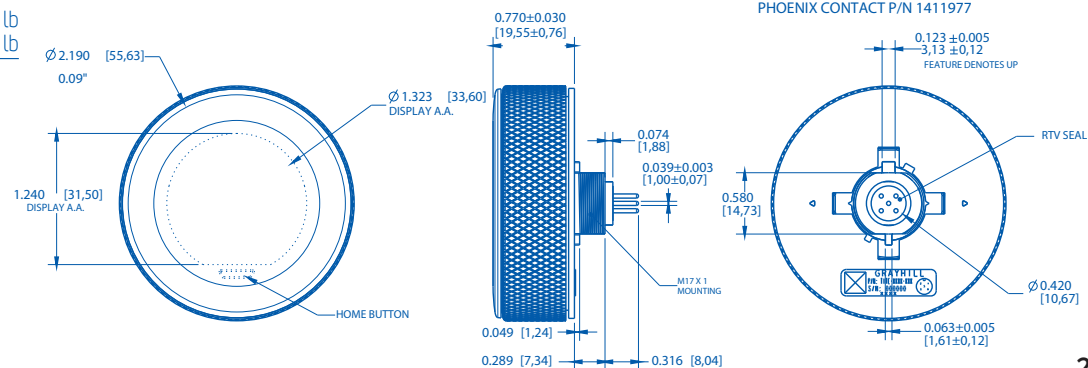
4 ft Open Radar Sensor DRS12A X-Class   21.0 kg 46.3 lb
6 ft Open Radar Sensor DRS12A X-Class   23.0 kg 50.7 lb

4 ft Open Radar Sensor DRS25A X-Class   22.0 kg 48.5 lb
6 ft Open Radar Sensor DRS25A X-Class   24.0 kg 53.0 lb
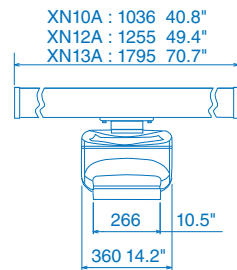
Touch Encoder Unit TEU001B/S (option, U.S. and Canada only)   0.12 kg 0.26 lb

MATING CONNECTORS (OR EQUIVALENT):
PHOENIX CONTACT P/N 1411976
PHOENIX CONTACT P/N 1411977

200 7.9"
4-ø12
Fixing hole
92 3.6"
Cable entry
200 7.9"
Bow
445 17.5"
130 5.1"
285 11.2"
160 6.3"
330 13"

XN10A : 1036 40.8"
XN12A : 1255 49.4"
XN13A : 1795 70.7"
266 10.5"
360 14.2"

Ø 2.190 [55,63]
0.09"
1.240 [31,50]
DISPLAY A.A.
Ø 1.323 [33,60]
DISPLAY A.A.
HOME BUTTON

0.770±0.030
[19,55±0,76]
0.074
[1,88]
0.039±0.003
[1,00±0,07]
M17 X 1
MOUNTING
0.049 [1,24]
0.289 [7,34]
0.316 [8,04]

0.123 ±0.005
3,13 ±0,12
FEATURE DENOTES UP
RTV SEAL
0.580
[14,73]
Ø 0.420
[10,67]
0.063±0.005
[1,61±0,12]

Specifications - NavNet Series Fish Finders

MODEL	DFF1-UHD	BBDS1	DFF3	DFF3-UHD
TRANSCEIVER & DISPLAY				
Display Modes	Single (High or Low frequency), Dual (Both High and Low frequencies), Bottom-lock, Bottom-Zoom, ACCU-FISH™, Bottom Discrimination, Marker Zoom, A-Scope	Single (50 or 200 kHz), Dual (50 and 200 kHz), Bottom-lock, Bottom-Zoom, ACCU-FISH™, Bottom Discrimination, Marker Zoom, A-scope	Single (high or low), Dual, Bottom-lock, Bottom-Zoom, ACCU-FISH™*, Marker Zoom, A-scope *Compatible transducer required	Single (High or Low frequency), Dual (Both High and Low frequencies), Bottom-lock, Bottom-Zoom, A-Scope
Frequency	Dual frequency 30-70 & 175-225 kHz	Dual frequency 50 and 200kHz	The synthesized transducer works with dual frequencies between 28 and 200 kHz	The synthesized transducer works with dual frequencies between 28 and 200 kHz
Broadband (CHIRP)	Available	N/A	N/A	Yes
Range Scale	Max. 1,200m	Max. 1,200m	Max. 3,000m	Max. 12,000 m
Output Power	1kW	1kW	3kW	2kW/3kW/5kW/10kW*
ENVIRONMENT				
Temperature	N/A	-15℃ to +55℃		
Waterproofing	IP55	IP20	IP20	IP20
POWER SUPPLY				
	12-24 VDC			12-24 VDC
	30 W, 2.8-1.4 A	12 W, 1.1-0.4 A	30 W, 3.5 A	3.0-1.6 A (stand-by: 0.8-0.4 A)
TRANSDUCERS (Specify when ordering)				

Transducers

1 kW
Broadband transducers by AIRMAR
42-65 kHz (low), 130-210 kHz (high)
CM265LH, B265LH (with temperature sensor)
CM275LHW, B275LHW

600 W
50/200 kHz:
520-5PSD (Plastic, thru-hull), 520-5MSD (Bronze, thru-hull), 525-5PWD (Plastic, transom),
525STID-MSD (Bronze, thru-hull with speed/temp sensor),
525STID-PWD (Plastic, transom with speed/temp sensor)
1 kW
(Optional Matching Box, MB1100 may be required)
50/200 kHz: 50/200-1T, 50/200-12M

1/2/3 kW
28 kHz:	28F-8, 28BL-6HR, 28BL-12HR
38 kHz:	38BL-9HR, 38BL-15HR
50 kHz:	50B-6/6B, 50B-9B, 50BL-12HR, 50BL-24HR
68 kHz:	68F-8H, 68F-30H
82 kHz:	82B-35R
88 kHz:	88B-8, 88B-10, 88F-126H
107 kHz:	100B-10R
150 kHz:	150B-12H
200 kHz:	200B-5S, 200B-8/8B, 200B-12H
50/200 kHz:	50/200-1T

CHIRP 2/3 kW
2kW/1kW:	PM111LHW, R109LHW
2kW/2kW:	PM111LH, PM411LWM, R109LH, R109LM, R111LH, R111LM, R409LWM, 165T-PM542LM
3kW/1kW:	R509LHW
3kW/2kW:	CM599LH, CM599LM, R509LM, R599LH, R599LM

CW 2/3/5/10 kW
28 kHz:	CA28BL-6HR, CA28BL-12HR, CA28F-38M, CA28F-72
38kHz:	CA38BL-9HR, CA38BL-15HR
50kHz:	CA500BL-12HR, CA50BL-24HR, CA50F-38, CA50F-70
68 kHz:	CA68F-30H, CA82B-35R
82kHz:	CA82B-35R
88 kHz:	CA82B-35R, CA100B-10R
150 kHz:	CA150B-12H
200 kHz:	CA200B-8/8B, CA200B-12H

*BT-5 Required for 5kW/10kW Transducers

Network Fish Finder DFF1-UHD   3.1 kg 6.8 lb

Network Fish Finder/Bottom Discrimination Sounder BBDS1   1.3 kg 2.9 lb

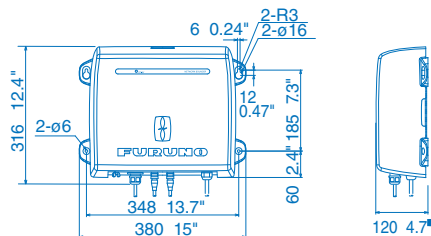Network Fish Finder DFF3   3.8 kg 8.4 lb
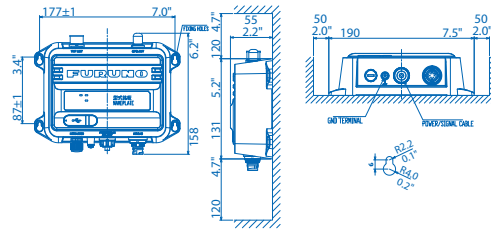
Network Fish Finder DFF3-UHD   3.8 kg 8.4 lb
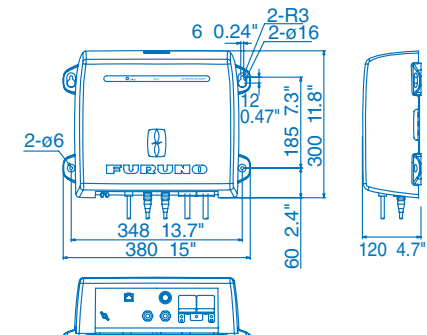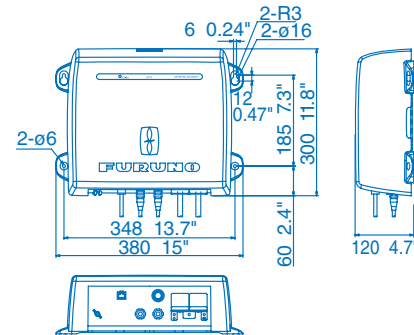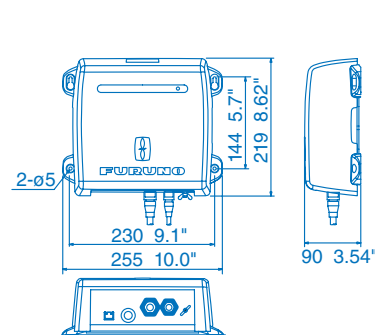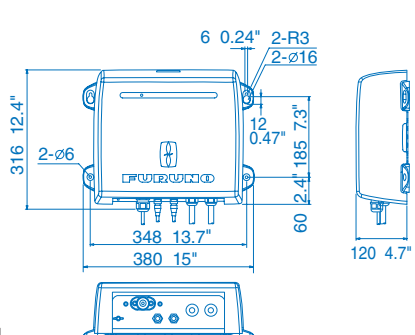
Specifications - NavNet Series Multibeam Sonar | AIS Reciever & Transponder

MODEL	DFF3D NETWORK MULTIBEAM SONAR
TRANSCEIVER & DISPLAY	
Display Mode	Cross Section, Triple/Single Beam Sounder, Side Scan, 3D Sounder History, PBG (Personal Bathymetric Generator)
Frequency	165 kHz
Beam Angle	60° Port/Stbd, 120° total
Detection Range	200 m* (Side beam best performance) 300 m* (Main beam directly under boat) * Depending on bottom type and water conditions.
Range Scale	5-1,200m
INTERFACE	
LAN	1 port, Ethernet 10/100Base-TX
External KP	1 port (optional external KP kit required)
ENVIRONMENT	
Temperature	-15°C to +55°C
Waterproofing	IP55
POWER SUPPLY	
	12-24 VDC, 1.4-0.7 A
TRANSDUCER	
	165T-B54 or 165T-SS54 (thru-hull mount), or 165T-TM54 (transom mount) Combo Transducers: 165T-50/200-SS260 (thru-hull mount), 165T-265LH-PM488 (pocket mount), or 165T-50/200-TM260 (transom mount)

MODEL	FA40 AIS RECEIVER	FA70 CLASS - B+ AIS TRANSPONDER
STANDARDS		
	IEC 60945 Ed.4 IMO MSC.140 (76) ITU-R M.1371-5, EN 303 413 V1.1.1 EN 301 843-1 V2.2.1 IEC 60945 Ed.4+CORR.1, IEC 62368-1 Ed.3	IMO MSC.140 (76) ITU-R M.1371-5, DSC: ITU-R M.825-3 IEC 62287-1 Ed.3.0, IEC 62287-2 Ed.2.0, EN 303 413 V1.1.1 EN 301 843-1 V2.2.1 IEC 60945 Ed.4+CORR.1, IEC 62368-1 Ed.3, IEC 62311 Ed.1+Ed.2
TRANSPONDER UNIT* **FA40: RECEIVER UNIT*		
TX/RX Frequency (FA40: RX Frequency)	156.025 to 162.025 MHz	
Output Power	----	5W or 1W(SOTDMA), 2W(CSTDMA)
Channel Spacing	25 kHz	25 kHz
GPS RECEIVER		
Receiving Channels	----	12 channels, SBAS 2 channels, 14 satellites tracking
Rx Frequency	----	1575.42 MHz
Rx Code	----	C/A code
Position Accuracy	----	13 m (2 drms, HDOP <= 4)
INTERFACE		
NMEA0183 — Input	ACA, ACK, AIQ, DTM, GBS, GGA, GLL, GNS, HDT, OSD, RMC, SSD, THS, VBW, VSD, VTG	ABM, ACK, AIQ, BBM, HDT, SSD, THS, VSD (ABM, BBM: SOTDMA only)
NMEA0183 — Output	ABK, ACA, ACS, ALR, GGA, GLL, RMC, SSD, TXT, VDM, VDO, VER, VSD, VTG	ABK, ACA, ACS, ALR, GGA, GLL, RMC, SSD, TXT, VDM, VDO, VER, VSD, VTG
NMEA2000 — Input	059392, 059904, 060160, 060416, 060928, 065240, 126208, 127250	059392, 059904, 060160, 060416, 060928, 065240, 126208, 127250
NMEA2000 — Output	059392, 059904, 060928, 126208, 126464, 126992, 126993, 126996, 126998, 127258, 129025, 129026,129029, 129038, 129039, 129040, 129041, 129540, 129792, 129793, 129794, 129795, 129796, 129797, 129798, 129800, 129801, 129802, 129803, 129804, 129805, 129806, 129807, 129809, 129810, 129811, 129812, 129813	059392, 059904, 060928, 126208, 126464, 126992, 126993, 126996, 126998, 127258, 129025, 129026,129029, 129038, 129039, 129040, 129041, 129540, 129792, 129793, 129794, 129795*, 129796, 129797, 129798, 129800, 129801, 129802, 129803, 129804*, 129805, 129806, 129807, 129809, 129810, 129811, 129812*, 129813* (*SOTDMA mode only)
ENVIRONMENT		
Temperature — Antenna Unit	-25°C to +70°C	-25°C to +70°C
Temperature — Other Units	-15°C to +55°C	-15°C to +55°C
Waterproofing — Antenna Unit	IP56	
Waterproofing — Other Units	IP55	
POWER SUPPLY		
Transponder Unit (FA40: Receiver Unit)	12-24 VDC, 0.3.-0.2 A	12-24 VDC, 1.8-0.9 A
Display Unit:	----	----

Network Multibeam Sonar DFF3D   3.0 kg 6.6 lb

FA40/70 AIS Receiver   1.5 kg 3.3 lb

BEWARE OF SIMILAR PRODUCTS

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