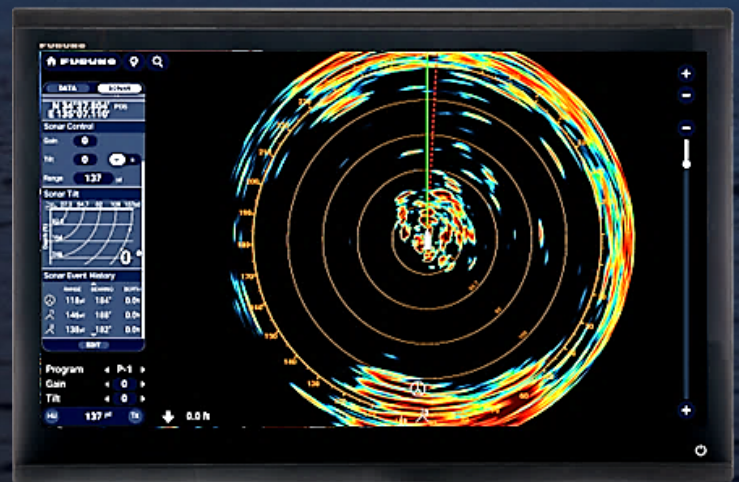


SALES BULLETIN

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Integration with 360-degree Omni Scanning Sonar CSH-10

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1. Overview

The **CSH-10** is a new 360-degree Omni Scanning Sonar and can be integrated with the NavNet TZtouchXL series MFDs.

1.1. CSH-10 – Highlight

- ✦ Improved target detection
- ✦ 83.5 kHz (±2 kHz selectable)
- ✦ Built-in motion sensor
- ✦ Tilt: -5 to +60°
- ✦ 400- or 600-mm stroke
- ✦ Double faster raise/lower speed: 7 sec (400 mm) or 10 sec. (600 mm)
- ✦ Supported vessel speed: Max. 20kn (18kn for raise/lower operation)
- ✦ F1 to F10 function keys
- ✦ SXGA (1280×1024) via HDMI
- ✦ Max. range scale 2000 m
- ✦ 24 VDC



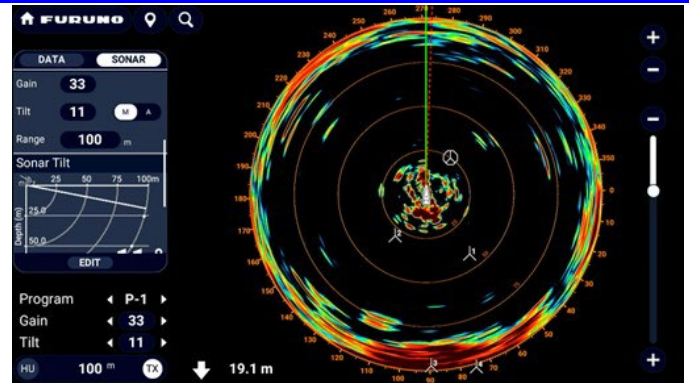
Minimum Requirement of Software Versions

The following table shows the software versions of the CSH-10 components as of February 2025 that support integration with the NavNet TZtouchXL series MFDs. Make sure to have the latest or newer software as of installation.

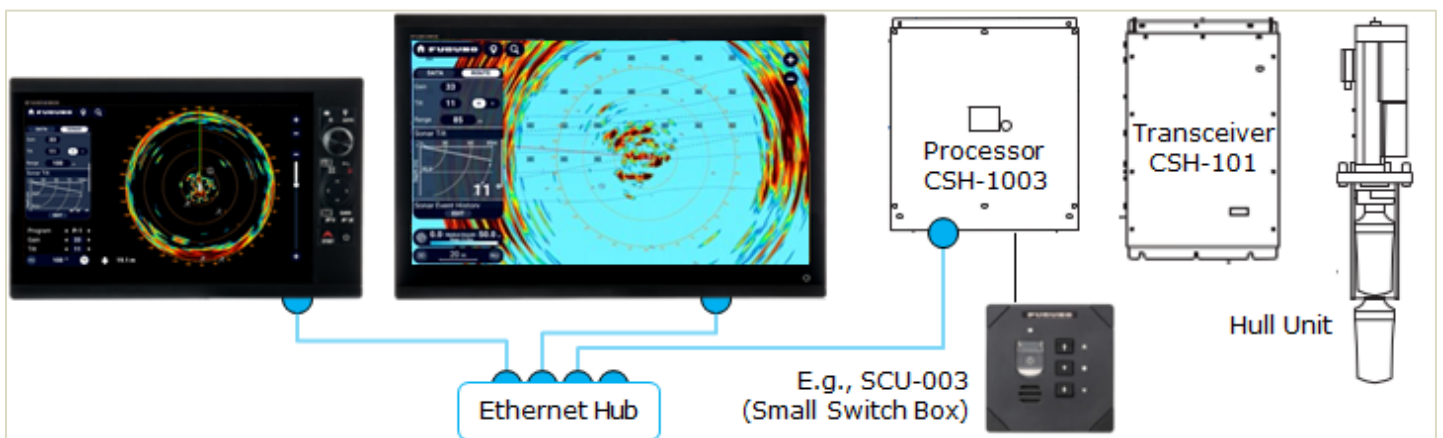
Unit	Program	Latest Version as of Feb. 2025
CSH-101 Transceiver	TRCPU_APPL	105-0964-01.01
	TRX_PPGA	105-0966-01.01
	HMS_APPL	105-0946-01.04
CSH-1003 Processor	APPLICATION	105-1022- 01.02 (Initial ver. -01.01)
	OS	105-1021- 01.03 (Initial ver. -01.01)
	CFAST (OS + APPLICATION)	105-1024- 01.02 (Initial ver. -01.01)
SCU-002 Control Unit	APPLICATION	105-1005-01.02
SCU-003 Small Switch Box	APPLICATION	105-1016-01.02

1.2. Integration with NavNet TZtouchXL

The NavNet TZtouchXL series MFDs offers the following integration with the CSH10 Omni Sonar. Dedicated CSH10 page showing sonar echoes, offering touch operation for adjusting the Sonar such as tilt and range, selecting different programs, etc. The Sonar echoes can also be overlaid on any chart unlocked on the MFD.



In this example, the CSH-10 is connected to a TZT22X and TZT13X. To power on/off and raise/lower the hull unit on the CSH-10, the optional small switch box SCU-003 is used instead of the standard control unit SCU-002, as the sonar can be operated directly on the MFD screens.



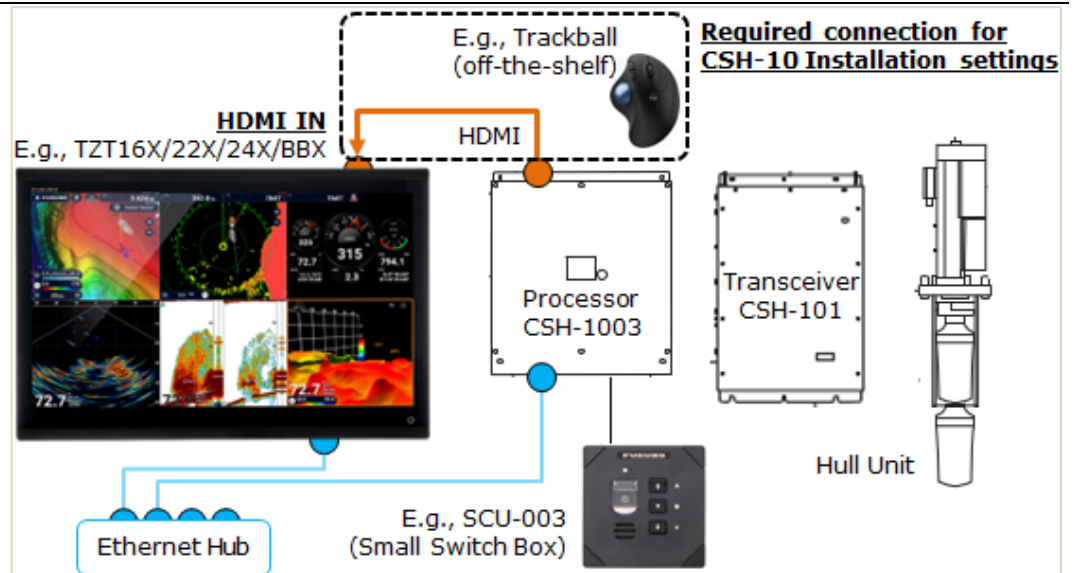
2. Installation Settings on CSH-10

A Dedicated HDMI Monitor is Required!

Installation Settings for the CSH-10 are required **on the CSH-10** before establishing the network with NavNet TZtouchXL series MFDs. If you have a TZT16X, 22X, or 24X, you can use the HDMI In to view and make these settings.

Case 1 – MFD with HDMI IN Port

In this example, the TZT16X/22X/24X/BBX will be networked with the CSH-10. During the installation settings for the CSH-10, the HDMI output from the CSH-10 is input to the HDMI IN of the MFD to show the CSH-10 video image.

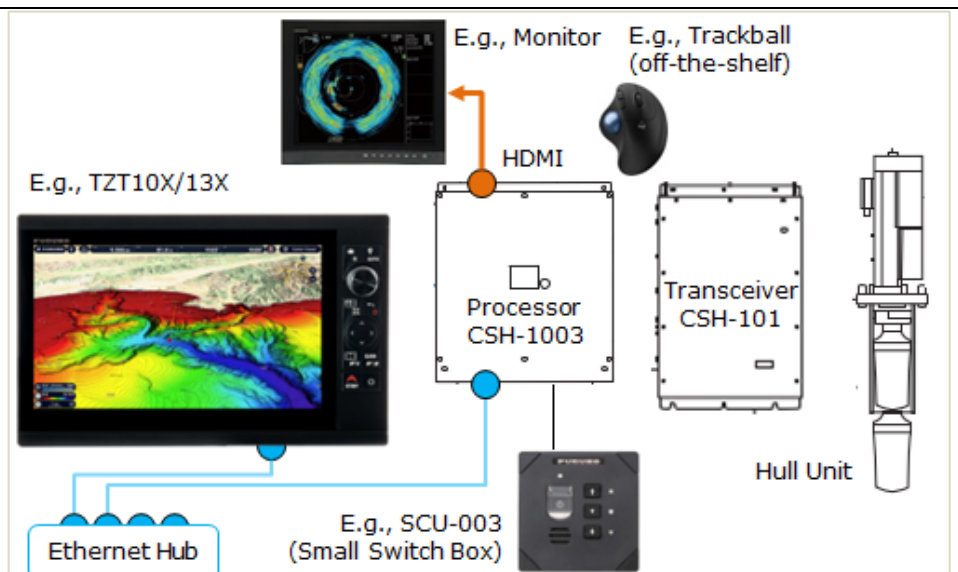


Note:

While the HDMI IN port supports the screen resolution of FullHD (1920×1080, 16:9), the CSH-10 outputs SXGA (1280×1024) via HDMI: To fit the CSH-10 video image on the widescreen, make sure to fix the CSH-10 output resolution to SXGA via dip switches on the CSH-10 processor unit. (The default dip switch setting is set for auto-scaling among square monitors.)

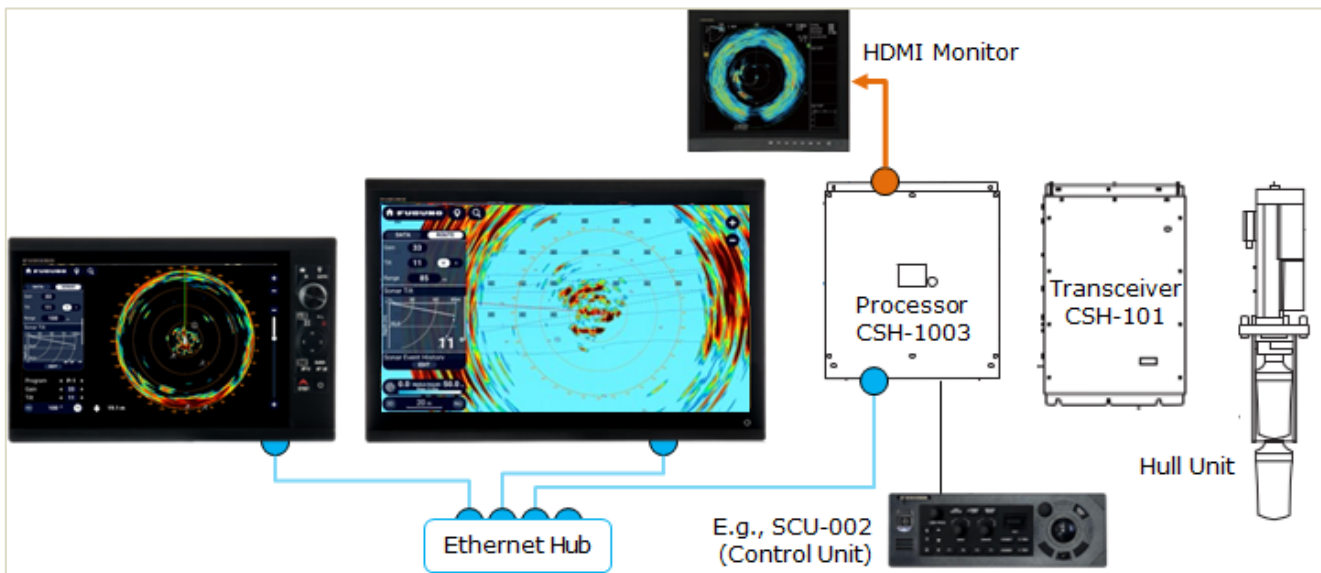
Case 2 – MFD without HDMI IN Port

When the TZT10X/13X without the HDMI IN port is networked, the CSH-10 may be connected to an HDMI monitor, if available onboard, for CSH-10 installation settings.



Case 3 – MFD and Dedicated CSH-10 Monitor

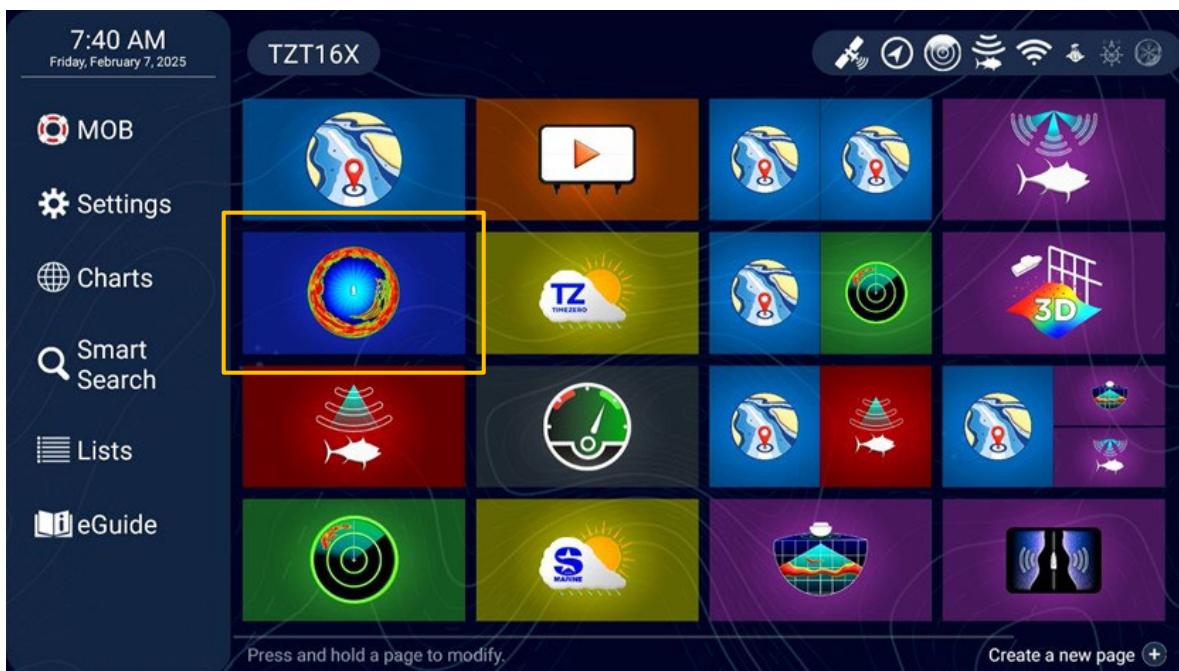
A dedicated HDMI monitor such as the MU-192HD can also be used in addition to NavNet TZtouchXL series MFDs. While the MU-192HD is utilized for installation settings of the CSH-10, as well as operation with the standard control unit SCU-002 with hardware keys and the trackball, the MFDs may be used to determine the relationship between depth contours and targets observed on charts and Sonar echoes.



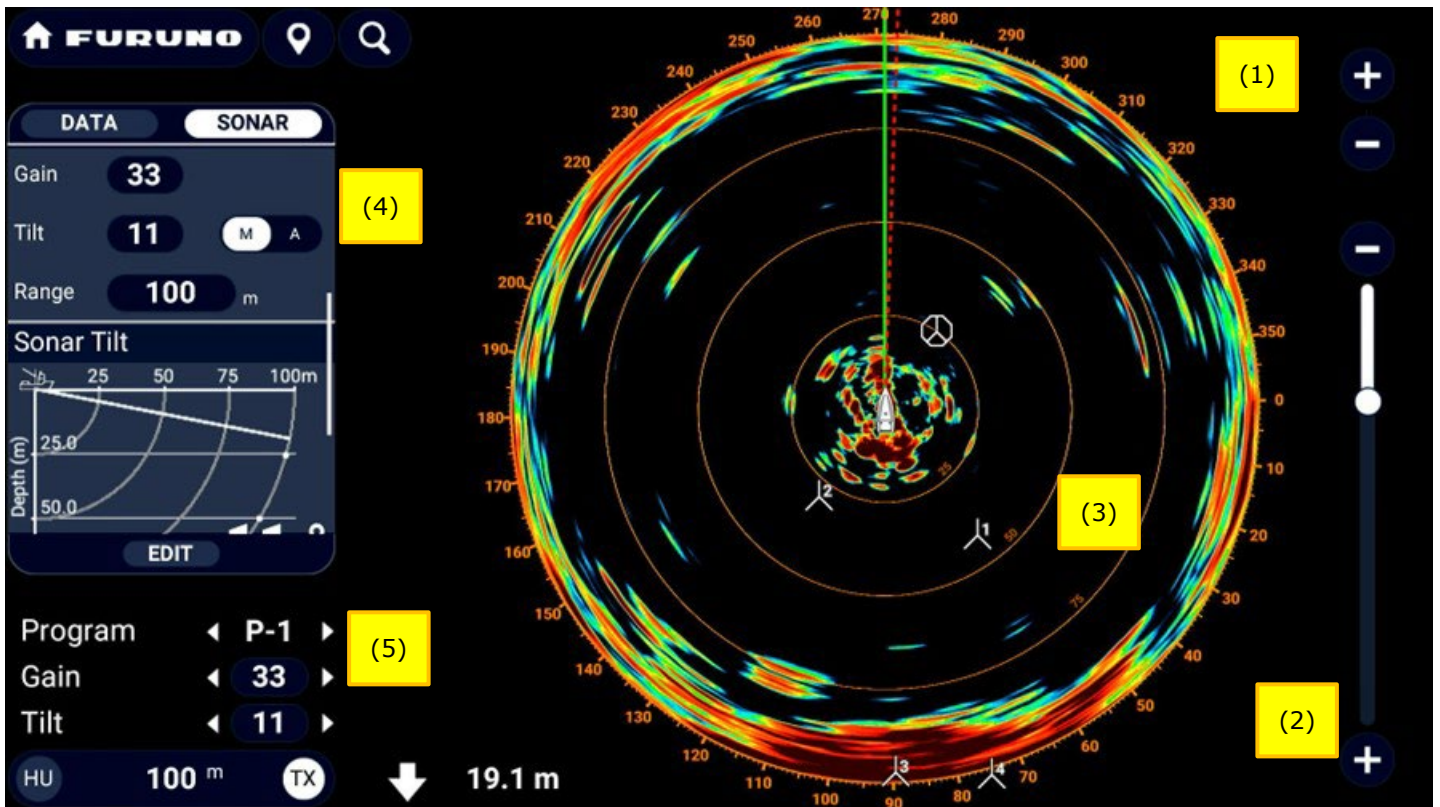
3. Controlling Sonar on MFDs

3.1. Home Page

Once the installation settings of the CSH-10 are complete, you are ready to control the CSH-10 on MFD screens. On the Home page, the new Sonar tile is available.



3.2. Sonar Page



(1) The [+] and [-] buttons adjusts range scales.

(2) The slider bar with [+] and [-] buttons adjusts tilt angles. The tilt is the most frequently adjusted setting and can be adjusted in various options. Tap the [+] or [-] buttons for incremental changes or drag the bar for dynamic adjustments. In addition, sliding up and down with two fingers on the Sonar screen also adjusts the tilt angles.

(3) Distance markers are deployed to show the distance at each range ring. In this example, while the range scale is set to 100 m, internal rings are also indicated as [75], [50], and [25].

(4) The Data Box has three control options.

(5) Program settings from P-1 to P-10, Gain, and Tilt can incrementally be adjusted by pressing arrows. For Gain and Tilt, tapping each figure box also pops up a slider bar for adjustments.

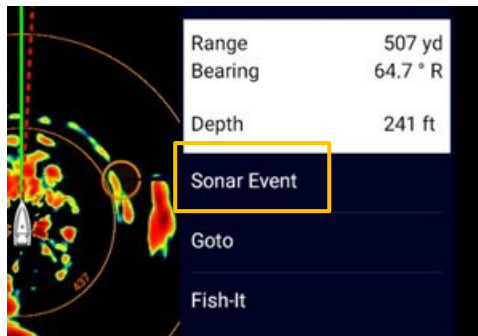
Sonar Control Boxes



[Sonar Control] helps check the current Gain, Tilt, and Range settings. Tapping each figure box pops up a slider bar for adjustment.

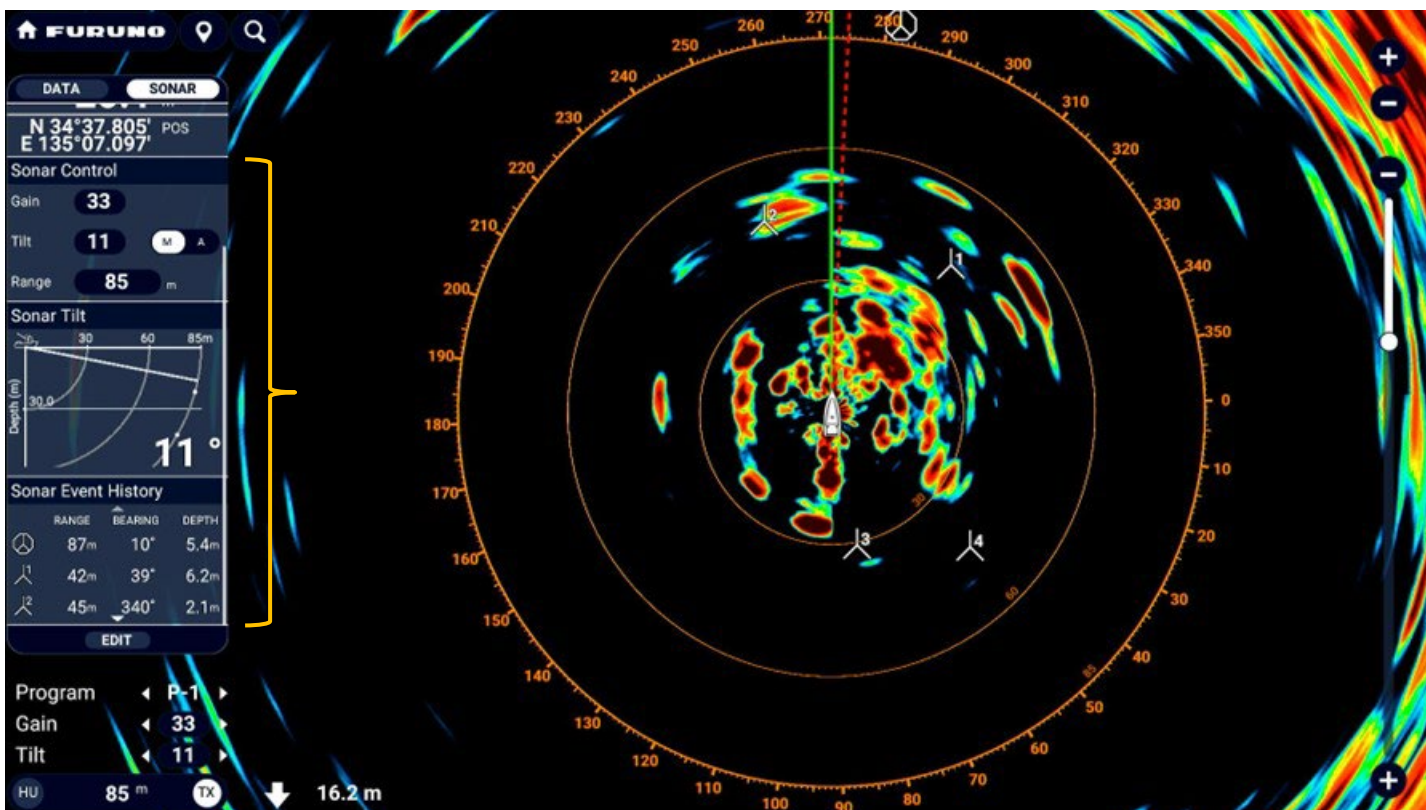
[Sonar Tilt] shows the currently set tilt angle. Tap the area above or below the angle bar; the tilt will be incrementally raised or lowered. Long tapping on the Sonar Tilt box will dynamically change the tilt angle to the held spot.

	RANGE	BEARING	DEPTH
☸	0.543NM	118°	141ft
1	651yd	114°	107ft
2	177yd	112°	205ft



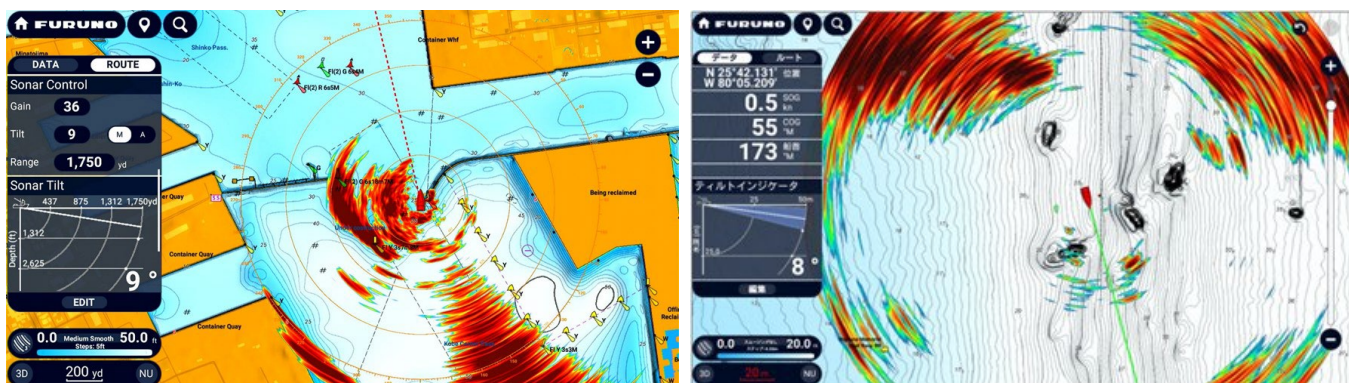
[**Sonar Event History**] shows the range, bearing, and depth information of a maximum of three (3) event marks. To enter an event mark, tap the required spot and select [**Sonar Event**] on the Contextual Menu. Note: This box is not shown by default.

Tips: If the data box size is reduced, all three Sonar control boxes can be shown on one page.



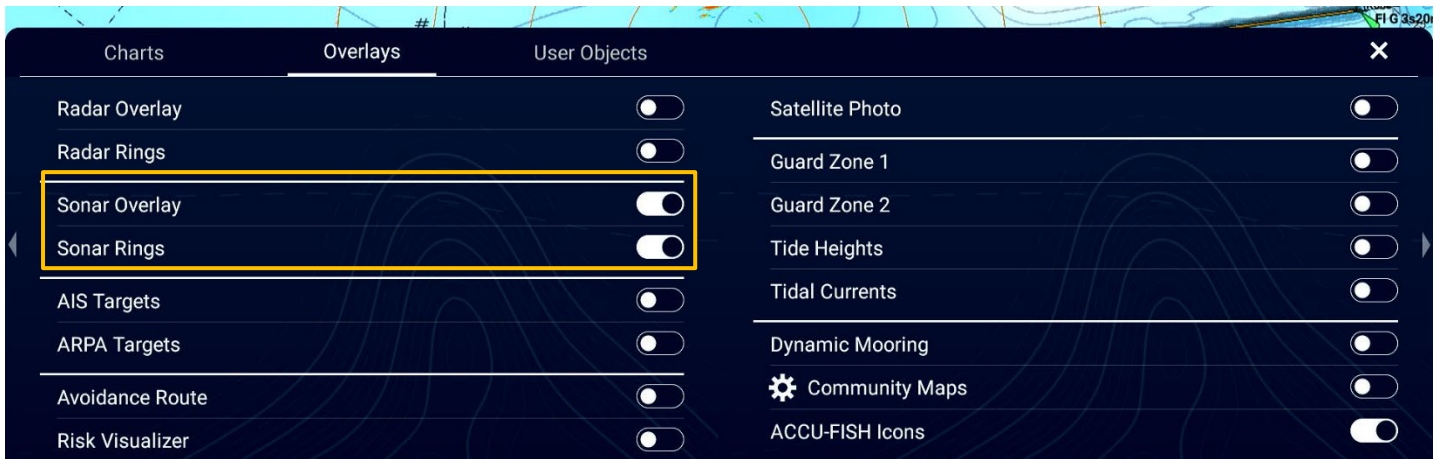
3.3. Plotter with Sonar

Sonar echoes overlaid on charts help locate a group of fish and also identify the relationship with the depth contour on charts. In addition, Sonar control boxes deployed on the Data Box allow you to adjust Sonar settings on the Plotter.



E.g., TZT16X – Sonar Control and/or Sonar Tilt boxes deployed

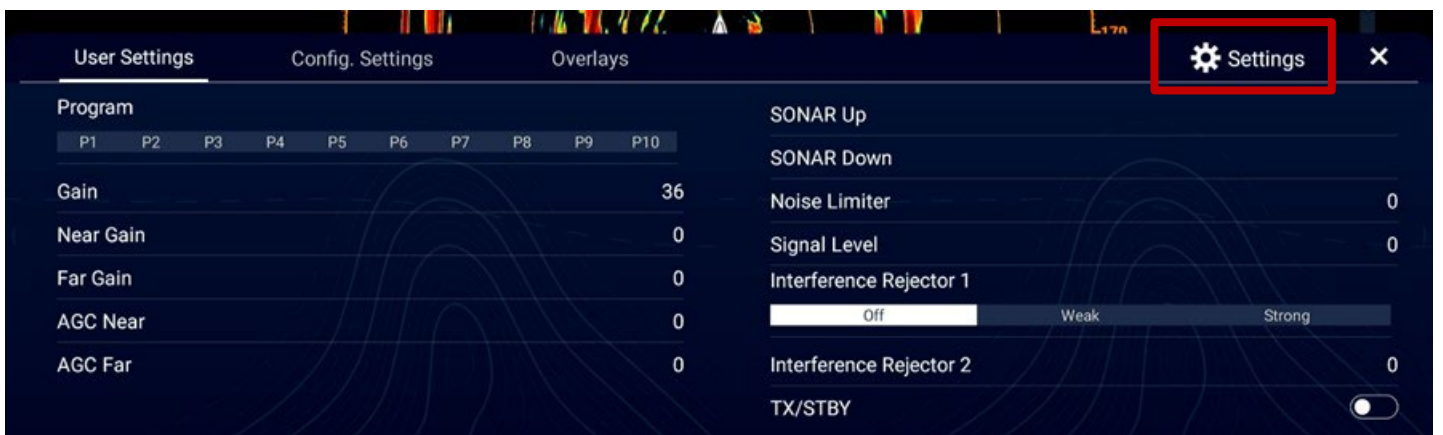
Below is the Plotter swipe up menu with CSH10 networked




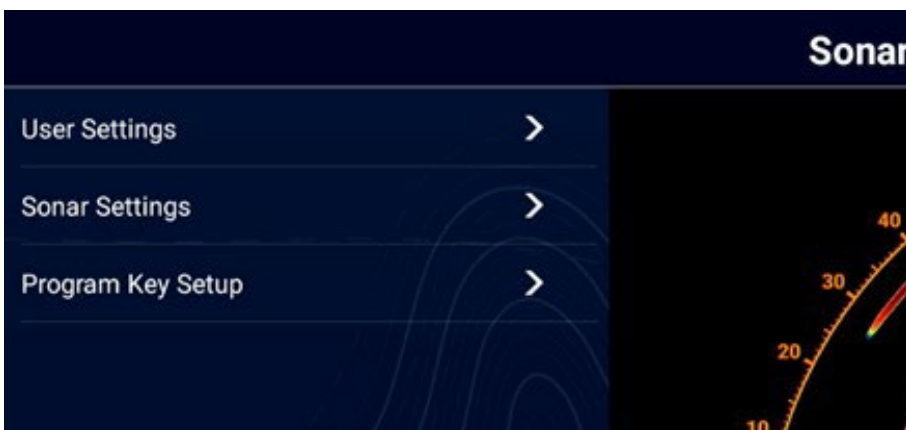
E.g., Layer Menu – [Overlays] – [Sonar Overlay] and [Sonar Rings]

3.4. Settings

Frequently accessed sonar settings can be found in the swipe-up Layers menu. For less commonly used options, tap the Settings icon for a shortcut to the Sonar Initial Settings menu.

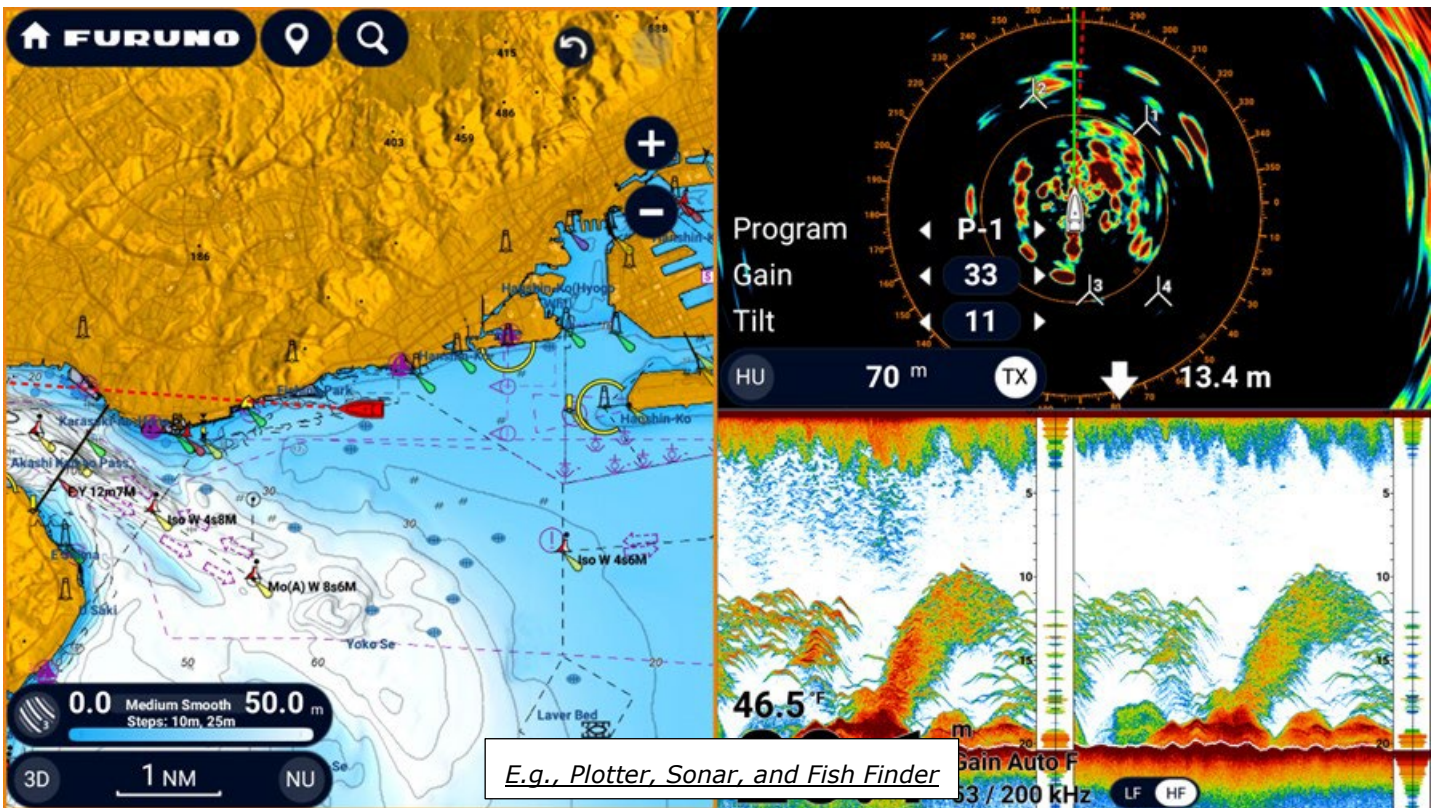
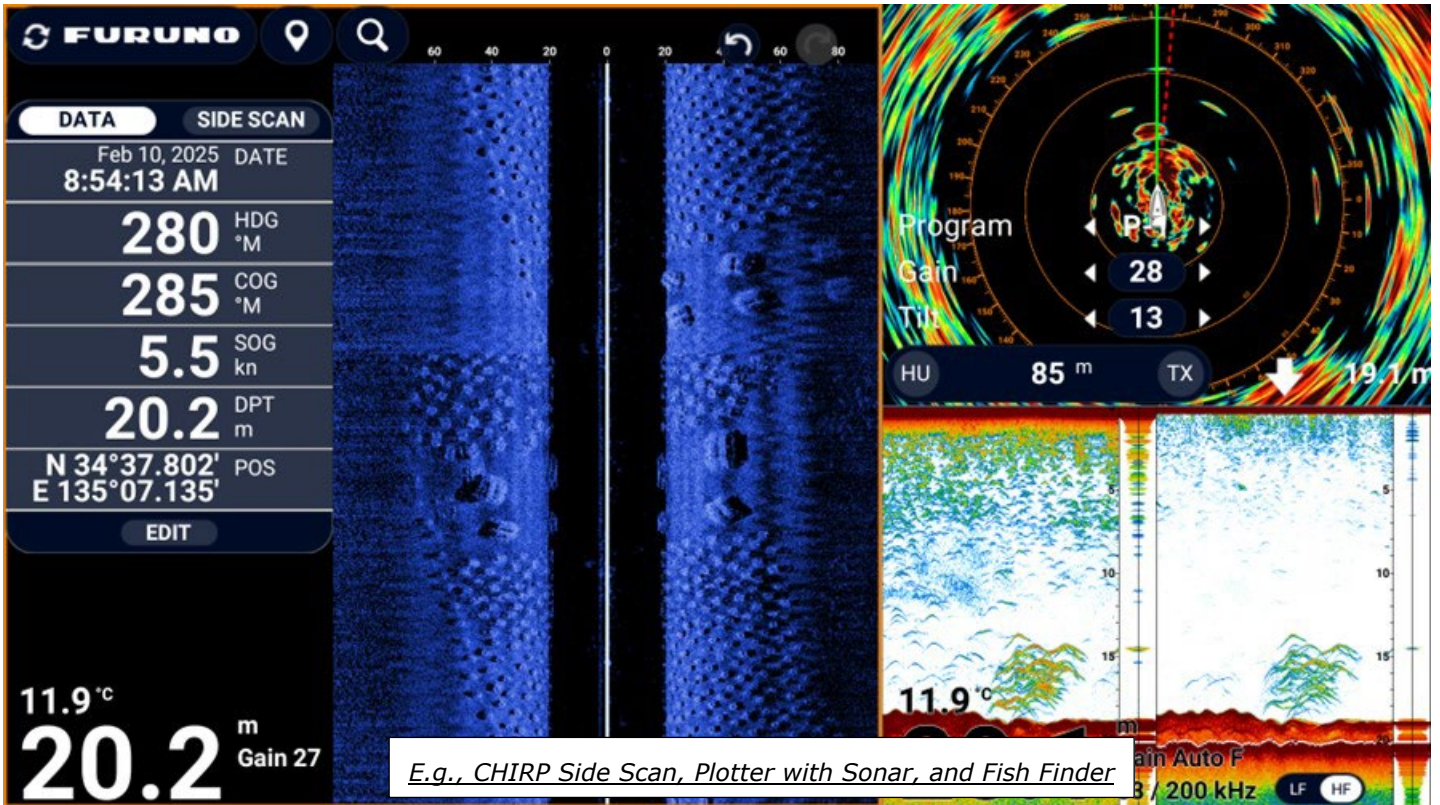


Tap on  to go directly to the Sonar menu.



3.5. Split Screen Modes

In addition to full screen modes, Sonar screens are available in split-screen. This allows you to easily reference other sources like the Fish Finder and CHIRP Side Scan at a glance



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