SEAKEEPER CONNECTBOX USER'S MANUAL

SEAKEEPER

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Document #   90769-1

SEAKEEPER CONNECTBOX USER'S MANUAL

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PURPOSE

This User's Guide is designed to provide comprehensive instructions and information on the proper setup and operation of the Seakeeper ConnectBox user interface. Whether a new Seakeeper owner or a seasoned Seakeeper technician, this guide will help navigate the features, troubleshoot common issues, and ensure you get the most out of the user interface.

REFERENCES

- [TB-90478 - Garmin and Seakeeper Compatibility](#)

- [TB-90479 – Raymarine and Seakeeper Compatibility](#)

- [TB-90480 - NAVICO (Simrad / Lowrance / B&G) and Seakeeper Compatibility](#)

- [TB-90598 - Furuno and Seakeeper Compatibility](#)

- [TB-90555 – Seakeeper Display Software Compatibility](#)

- [TB-90640 – ConnectBox Connection Requirements](#)

- [TB-90653 - Seakeeper Display Navigation](#)

- [TB-90896 – ConnectBox Installation Guide](#)

- [TB-90906 – Seakeeper Software Update](#)

- [PUB-90662 – Seakeeper ConnectBox Integration and Display Options](#)

- [PUB-90663 – Seakeeper ConnectBox Generic Wiring Diagram](#)

- [90569 – Seakeeper ConnectBox and Application Quick Start Guide](#)

- [90558 – ConnectBox Helm Mounting Kit](#)

- [Software Update Instructions](#)

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CONNECTBOX FUNCTIONS

The ConnectBox was developed to integrate with the multifunction display (MFD), minimizing clutter by eliminating the need for dedicated Seakeeper components at the helm. The ConnectBox (Figure 1) allows the user to perform the following operations:

- Start or stop the Seakeeper motor
- Observe spool-up status
- Turn stabilization on or off
- Control ConnectBox LED brightness (Four modes: off, dim, medium, and bright)
- Control DHCP mode of ConnectBox
- Update software or transfer data

POWER BUTTON: Turns power to Seakeeper flywheel motor ON or OFF.

NETWORK BUTTON: Changes the DHCP setting for MFD integration.

BRIGHTNESS BUTTON: Controls ConnectBox LED brightness. There are four modes: off, dim, medium, and bright.
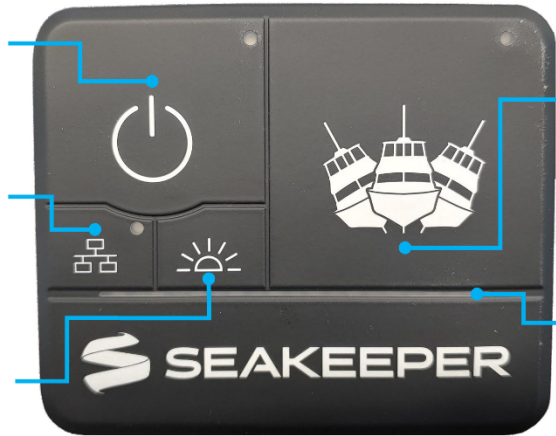
STABILIZE BUTTON: Unlocks the Seakeeper (to stabilize) or locks the Seakeeper (to stop stabilization).

SPOOL STATUS BAR: Visually indicates percentage of spool to target speed when Seakeeper spooling up. The bar also indicates DHCP status.

Figure 1: ConnectBox user interface buttons and indications

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INTERFACES

The rear of the ConnectBox (Figure 2) has three M12 connections for interfaces.

- The connection labelled *SK* uses a 5-pin NMEA Lite connector for communication with the Seakeeper proprietary controller area network (CAN). This connector is at the top of Figure 2.

- The connection labelled *NMEA* is a 5-pin NMEA Lite connector optimized for NMEA 2000 communication. This connector is the bottom left connector in Figure 2.

- The last connector, labelled *ETHERNET* is a 10/100 ethernet 4-pin connector. The ethernet connector is the bottom right connector in Figure 2.
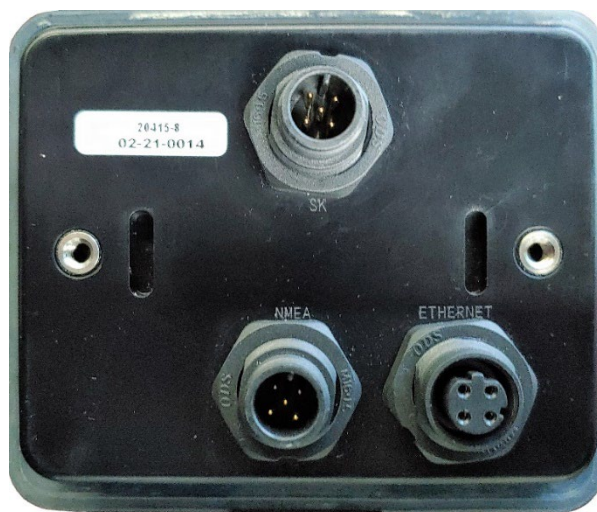

Figure 2: ConnectBox rear panel and connectors

TB-90640, ConnectBox Connection Requirements document provides guidance in connecting the Seakeeper ConnectBox with the boat's systems (MFD and NMEA 2000 CAN). It also explains how to create a standalone GPS backbone and GPS antenna on boats that do not have a NMEA 2000 backbone.

PUB-90662, ConnectBox Integration Display Options document provides the benefits, installation guidance, and lists compatible MFDs for the ConnectBox.

PUB-90663, Seakeeper ConnectBox Generic Wiring Diagram provides cable schematics showing the connections in a Seakeeper installation. Installers have several options when installing a Seakeeper and this publication explains each option.

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SEAKEEPER INTERFACE

The Seakeeper wire harness connects to the ConnectBox via a 5-pin NMEA Lite connector, a T-adapter, and a terminating resistor. The Seakeeper proprietary CAN network communicates operational inputs, multiple parameters, and notifications. It is through the T-adapter where one can install an optional Seakeeper 5" Touch Display (P/N 90467) (see Figure 3).
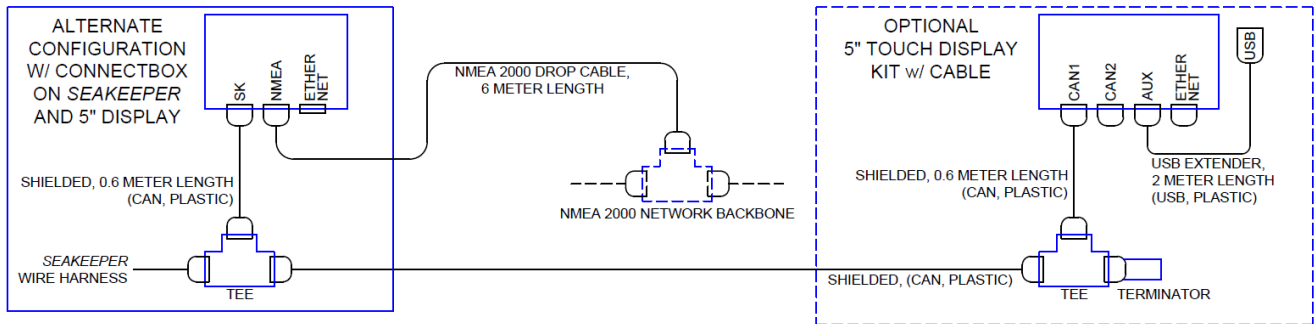

Figure 3: ConnectBox with optional Seakeeper 5" Touch Display (P/N 90467)

Display Options

Ideally, the Seakeeper will be connected to a compatible MFD via the Ethernet connector. The Seakeeper application offers all the functions of the legacy 5-inch display. More MFD connectivity details are provided in later sections.

The Seakeeper 5" Touch Screen Display will still be available as an option (P/N 90467) and is compatible with the ConnectBox interface. It can be used in conjunction with a compatible MFD. The display requires a console space of approximately 5.24 W x 3.70 H inches (133 x 94 mm). CAN communication cable lengths are available between 32 and 213 ft (10 to 65 m).

An optional ConnectBox Helm Mounting Kit (P/N 90558) is available to mount the ConnectBox remotely. Console space required is approximately 3.41 L x 4.15 W inch (87 x 106 mm). A replacement blank insert is provided in the kit to be installed in the original location of the ConnectBox in the Seakeeper.
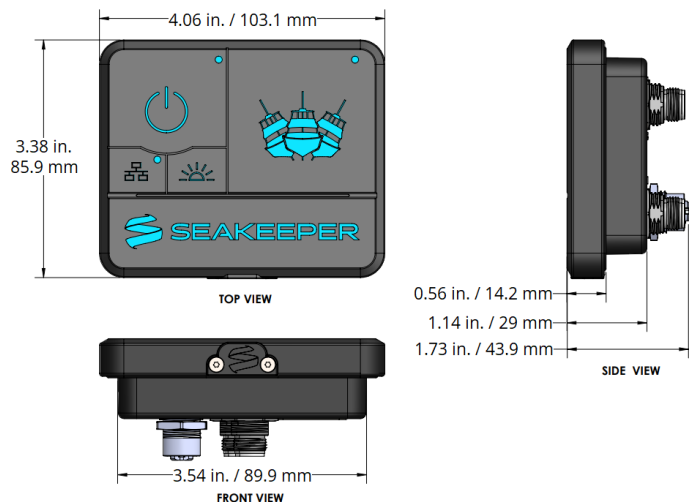

Figure 4: ConnectBox dimensions

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NMEA 2000 INTERFACE

The Seakeeper ConnectBox requires a connection to the vessel's NMEA 2000 network backbone via a 5-pin NMEA Lite drop cable to access the GPS signal. The Seakeeper will monitor GPS information on the NMEA 2000 network to support and optimize performance. A warning (Code 131) will appear on the Seakeeper display if no GPS signal is detected. Without a GPS signal, the unit can still spool up and coast down but will not precess to provide roll reduction.

DC-powered Seakeepers have used battery voltage depletion to initiate power ramp-downs to extend battery life. With Lithium batteries, battery voltage is no longer an accurate indicator for this function; the state of charge (SoC) NMEA 2000 signal is more accurate when available. In response, Seakeeper released software for gyro control modules (GCMs) and user interfaces (ConnectBox and 5" Touch Displays). The software allows the user to select how the Seakeeper's battery manager logic determines when to initiate a power ramp-down when an NMEA 2000 SoC signal is available on the network. TB-90621, Seakeeper Battery Sizing Recommendations, provides detailed information on the state of charge-based low-power protection.

The NMEA 2000 backbone connection is made via a drop cable, which cannot exceed 20 ft (6 m) in length. If the backbone is located more than 6 m from the Seakeeper the NMEA backbone must be extended closer to the Seakeeper installation location, or the ConnectBox must be remotely mounted near the NMEA 2000 backbone. An optional ConnectBox Helm Mounting Kit (P/N 90558) is available for remote mounting.

The NMEA 0183 network operates differently than the NMEA 2000 network; a Seakeeper cannot communicate with an NMEA 0183 network.

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ETHERNET INTERFACE

The ConnectBox ethernet connection (10/100 ethernet 4-pin connector) is intended only for a compatible MFD. Compatible MFDs are recommended because they can provide a GPS signal and the required display interface. The following MFD systems are currently compatible with the Seakeeper ConnectBox and are discussed in more detail later:

1. Compatible Garmin MFDs, refer to TB-90478

    a. Any OneHelm enabled Garmin MFD including TD 50; GPSMap 7X2 Plus, 9X2 Plus, 12X2 Plus Series; GPSMap 7x3, 9x3, and 12x3 Series; GPSMap 8400 & 8600 Series; GPSMap 8700 Black Box; and GPSMap 9000 series models.

2. Compatible Raymarine MFDs, refer to TB-90479

    a. Axiom, Axiom Pro, and Axiom XL series units.

3. Compatible NAVICO MFDs (Simrad, Lowrance, and B&G), refer to TB-90480

    a. Simrad: NSO Evo2, NSO Evo3, NSO Evo3S, NSO Evo3S MPU, NSS Evo3, NSS Evo3S, GO9 XSE, and the GO12 XSE series units.

    b. Lowrance: Elite FS, HDS Carbon, and HDS Live series units.

    c. B&G: Vulcan 7, Vulcan 9, Vulcan 12, Zues3. Zues3S, Zues3 Glass Helm, Zues3 Glass Helm, and the Zues3 Glass Helm MPU series units.

4. Compatible Furuno MFDs, refer to TB-90598

    a. Furuno Hardware: TZT9F, TZT12F, TZT16F, TZT19F, and TZT2BB series units.

When using an MFD with integrated GPS as the SoG source, an NMEA 2000 backbone must be established for the SoG source from the MFD and connected to the NMEA 2000 port on the ConnectBox. Some MFD installations require a network expansion hub to connect to multiple components.

Each MFD has a unique connector for ethernet connections; the MFD compatibility cable, available through Seakeeper, allows connection to the four types of compatible MFD systems from the ethernet extension cable. An ethernet extension cable supplied with the Seakeeper connects the ConnectBox and the MFD compatibility cable. The lengths of the ethernet extension cable vary with the model (Seakeeper 1 through 4.5 come with 33 ft or 10 m lengths, and Seakeeper 6 and above models come with 82 ft or 25 m lengths).

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DHCP CONFIGURATION

Dynamic Host Configuration Protocol (DHCP) automatically assigns IP addresses and other network configuration settings to devices on a network, including those connected via Ethernet. The ConnectBox operates in two DHCP modes: DHCP on or DHCP off. The two modes are also explained in the MFD compatibility bulletins.

DHCP server OFF means the ConnectBox receives an IP address from the MFD or an ethernet extension hub. DHCP server OFF is the **default mode** for the ConnectBox, and it is used when connecting to Garmin, Raymarine, and Furuno products.

In DHCP server ON mode, the ConnectBox assigns IP addresses to other devices. This mode is used to connect with Navico products.

The DHCP setting can be viewed at the ConnectBox by pressing and releasing the network button 🖧. The LED spool bar will flash from right to left to indicate it is in DHCP-OFF mode or from left to right to indicate DHCP-ON mode (Figure 5A & 5B).

Figure 5A: DHCP-OFF:	*Figure 5B: DHCP-ON:*
flashing from right to left	*flashing from left to right*

To change the DHCP mode, one must long-press the Network button until the spool bar LEDs begin flashing in one direction. To change the direction (DHCP mode), perform a second long-press of the Network button. Once in the desired mode, allow the ConnectBox to return to normal operation shortly. A DC power cycle will ensure the Seakeeper app icon appears on the MFD.

The ConnectBox can be reset to default by long pressing (10 seconds or more) the brightness and network buttons simultaneously.

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GARMIN CONNECTIVITY

The ConnectBox can easily connect to most Garmin MFDs through the Ethernet interface. Most Garmin MFDs use the Garmin Marine Network (GMN) MFDs that use Ethernet RJ45 connectors. The Garmin BlueNet (9000 Series) MFDs use the Garmin 9-pin BlueNet connectors. From the Seakeeper-provided Ethernet 10 or 25 m (32.8 or 82 ft) extension cable (P/N 30330 / 30355), one can connect to either Garmin system through a special Ethernet adapter cable provided by Seakeeper: 2 m (6.5 ft) M12 D-Code, 4-pin to GMN RJ45 cable (P/N20373) or the 2 m (6.5 ft) M12 D-Code 4-pin to BlueNet 9-pin cable (P/N 20617).
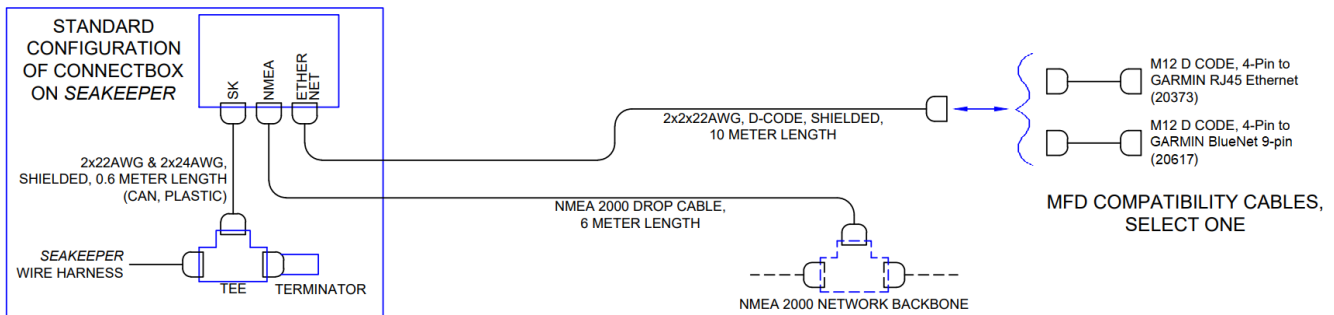
Figure 6: Garmin Connection Schematic

Once the hardware is connected, press the ConnectBox network button for 10 seconds or until the spool bar LEDs strobe from right to left to indicate that the DHCP server function is OFF.

| *Figure 7A: Press ConnectBox network button for 10 seconds* | *Figure 7B: Spool bar LEDs will strobe right to left for DHCP OFF.* |

If the spool bar LEDs strobe from left to right or there is no response, press the network button for 10 seconds or until the LEDs strobe from right to left to indicate the DHCP server is OFF. The ConnectBox will return to normal operation shortly. Lastly, the power is cycled to the Seakeeper and MFD. Verify that the Seakeeper app populates the Garmin display.

RAYMARINE CONNECTIVITY

The ConnectBox easily integrates with most Raymarine MFD models through the Ethernet interface. Connection is made possible through the Seakeeper-provided Ethernet 10 or 25 m (32.8 or 82 ft) extension cable (P/N 30330 / 30355) and the 2m (6.5 ft) RayNet adapter cable (P/N 20380).
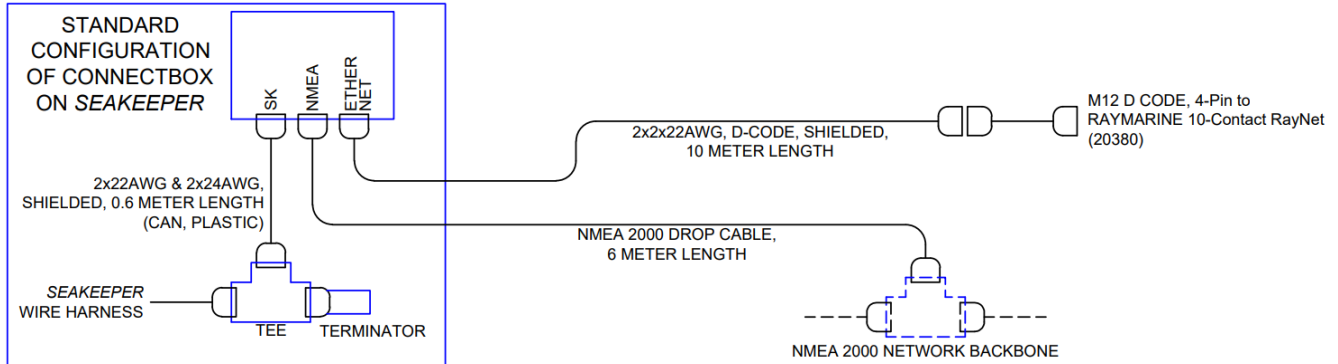

Figure 8: Raymarine Connection Schematic

Once the hardware is connected, press the ConnectBox network button for 10 seconds or until the spool bar LEDs strobe from right to left to indicate that the DHCP server function is OFF.

Figure 9A: Press ConnectBox network button for 10 seconds

Figure 9B: Spool bar LEDs will strobe right to left for DHCP OFF.

If the spool bar LEDs strobe from left to right or there is no response, press the network button for 10 seconds or until the LEDs strobe from right to left to indicate the DHCP server is OFF. The ConnectBox will return to normal operation shortly. Power is cycled to the MFD and the Seakeeper. Verify that the Seakeeper app populates the Lighthouse 3 "Installed Apps" screen.

NAVICO / SIMRAD CONNECTIVITY

The ConnectBox easily integrates with most Simrad, Lowrance, and B&G MFD models through the Ethernet interface. Connection is made possible through the Seakeeper-provided Ethernet 10 or 25 m (32.8 or 82 ft) extension cable (P/N 30330 / 30355) and the 2 m (6.5 ft) SimNet adapter cable (P/N 20346).
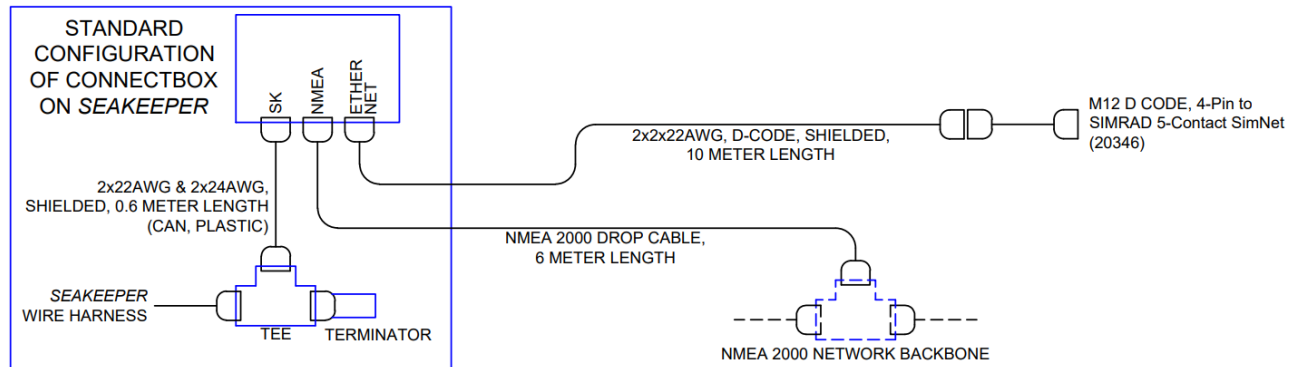

Figure 10: Navico/Simrad Connection Schematic

Once connections are made, cycle power to the Seakeeper DC control power and MFD in that order. Press and hold the ConnectBox network button for 10 seconds or until the spool bar LEDs strobe from left to right to indicate DHCP server ON (the ConnectBox will assign addresses). If the mode fails to switch, repeat the previous step of holding the ConnectBox network button until the LEDs strobe left to right.

Figure 11A: Press ConnectBox network button for 10 seconds

Figure 11B: Spool bar LEDs will strobe left to right for DHCP ON.

After a brief period, the ConnectBox will automatically return to normal operation. Verify that the Seakeeper app is populated on the Navico MFD's home page screen.

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FURUNO CONNECTIVITY

As with other MFD brands, the ConnectBox can integrate with most Furuno MFD models through the Ethernet interface. Connection is made possible through the Seakeeper-provided Ethernet 10 or 25 m (32.8 or 82 ft) extension cable (P/N 30330 / 30355) and the 2 m (6.5 ft) Furuno RJ45 adapter cable (P/N 20506). The Furuno Ethernet Hub101 is required hardware in most Furuno installations when connecting more than one Ethernet component to the compatible MFD.
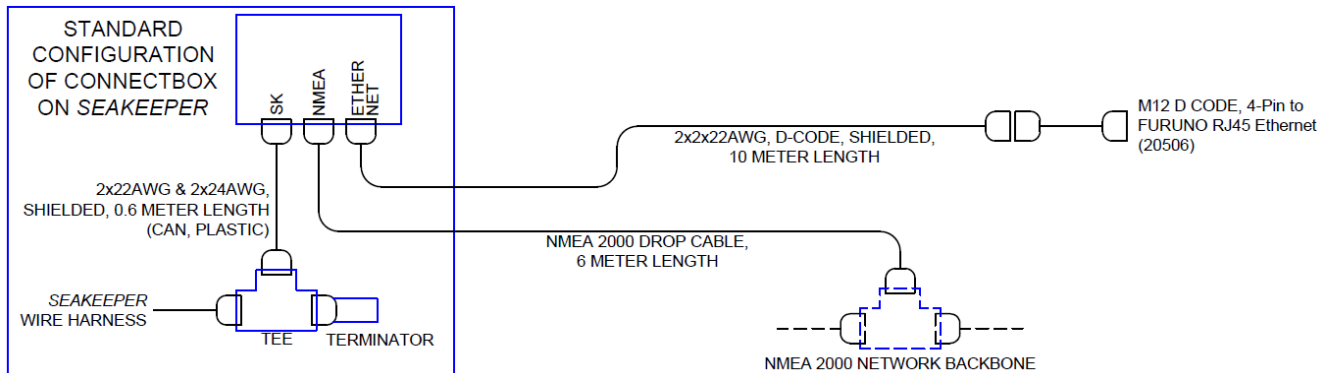

Figure 12: Furuno Connection Schematic

Once the hardware is connected, cycle DC control power to the Seakeeper. Press the ConnectBox network button for 10 seconds or until the spool bar LEDs strobe from right to left to indicate the DHCP server is OFF.

Figure 13A: Press ConnectBox network button for 10 seconds

Figure 13B: Spool bar LEDs will strobe right to left for DHCP OFF.

If the spool bar strobes from left to right or there is no response, press and hold the ConnectBox network button for another 10 seconds or until the spool bar LEDs strobe from right to left. Verify the Seakeeper app populates on the Furuno home screen.

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SEAKEEPER MFD OR DISPLAY APPLICATION

The ConnectBox requires a display interface. The Seakeeper may connect to a compatible MFD, an optional Seakeeper 5" Touch Display, or both an MFD and a 5" display. At the MFD or 5" display, the Seakeeper application acts as the interface for the user to remotely start and stop the Seakeeper, view Seakeeper operating parameters, adjust settings, and acknowledge Seakeeper notifications or alarms. TB-90653, Seakeeper Display Navigation, provides a generic visual guide to navigating the multiple screens available in the application. Each Seakeeper's operation manual (manuals.seakeeper.com) also describes the various screens.

HOME SCREEN

After the Seakeeper ConnectBox and Application have been initialized, the Application Home screen will be displayed (Figure 14). Users have two home screen views from which to choose. To toggle the two options, the user only needs to press the alternate view icon in the lower-left corner of the screen (seen circled in Figure 14).
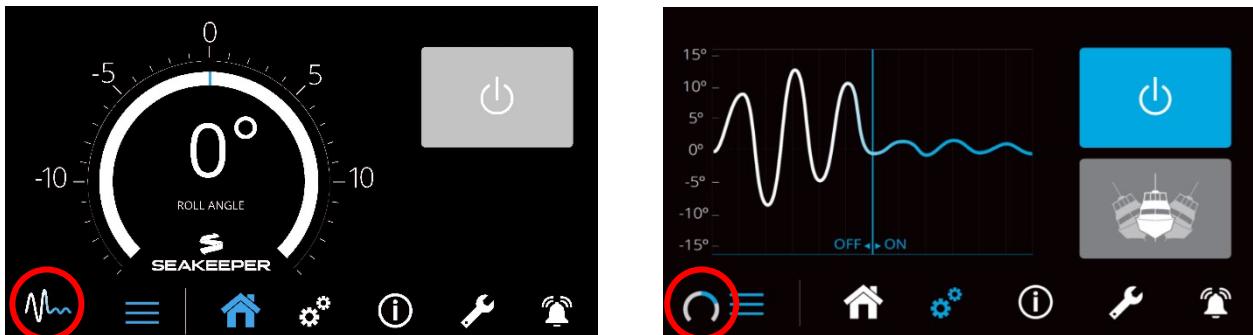
Figure 14: Two Home screen options shown

From the Home screen, the user can initiate the flywheel spool up or shut down by pressing the power button ⏻. When the gray-shaded power button is pressed, the flywheel motor starts and the button turns blue ⏻. When a running Seakeeper's power button is pressed, the flywheel motor is deenergized and the button turns back to gray.

Also, from the home screen, the user may initiate stabilization when the flywheel speed is above minimum RPM. Pressing the gray-colored stabilization button when it appears at the minimum flywheel speed will unlock the brake system, allow roll stabilization, and turn the button to a blue background. When stabilization is no longer desired, pressing the stabilization button locks the brake system again, and the stabilization button returns to a gray background.

The Menu Bar is used to navigate between pages. From left to right in Figure 15, the available pages are Home, Settings, Information (shown selected), Service, and Alarm History. The selected page is highlighted in blue on the Menu Bar.

Figure 15: Menu bar

SETTINGS SCREEN

The Settings Page allows the user to adjust their preferences for the display. It can be accessed by pressing the gears in the menu bar. The settings screen shown below is an example and may appear differently on the installed Seakeeper.
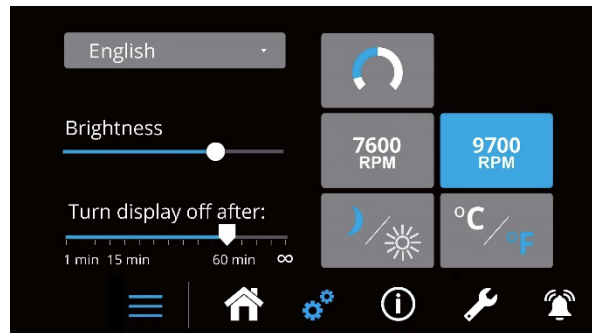

Figure 16: Settings screen

To increase or decrease the display's brightness, slide the white dot left to reduce brightness and right to increase brightness on the brightness bar, pictured below on the Settings Page.

Using the sleep time slider, one can adjust the sleep timer from 1 minute to 60 minutes or make the display visible all the time. Touching the screen will wake the display after it has gone to sleep.

Change the roll angle value sign displayed in the roll angle gauge [icons] so the gauge matches the boat's motion. Selection depends on installation orientation and will only need to be adjusted once. If the Seakeeper faces the vessel's bow, the Roll Angle Gauge should show the blue on the left (pictured left). If the Seakeeper faces the vessel's stern, select the Roll Angle Gauge with the blue on the right (pictured right). A positive roll angle should be displayed when the ship rolls to starboard.

Change the Seakeeper's speed between normal operation and quiet operation. Quiet mode consumes less power and should generate less noise. The selected speed is colored blue. When power is cycled (or the Seakeeper is turned off), this speed will return to the previously selected operating speed.

One can change the display between day and night mode [icons], and one can change between day and night mode by pressing the button.

The temperatures displayed on the Service Page can be converted between degrees Celsius and degrees Fahrenheit. The selected units are blue, and to change between Celsius and Fahrenheit, press the button.

The Seakeeper Application's language can be changed using the Settings Page. Click on ENGLISH, and a drop-down menu will appear. Select the desired language from the menu.

SETTINGS PAGE HIDDEN SCREENS

 The application has additional hidden screens that can help you view ethernet and NMEA 2000 settings. To access the hidden screens, select the Settings icon [icon] and long-press it until the hidden screen appears. The screen may have up to three tabs, as seen in Figures 17, 18, and 19.

Data Logging Tab

The tab shown in Figure 17 allows users to select their privacy preferences regarding sharing personal information that Seakeeper electronics may capture. This data includes GPS and speed data. Menu items *No Selection* and *Allow* will enable a data log transfer from the ConnectBox to a thumb drive.
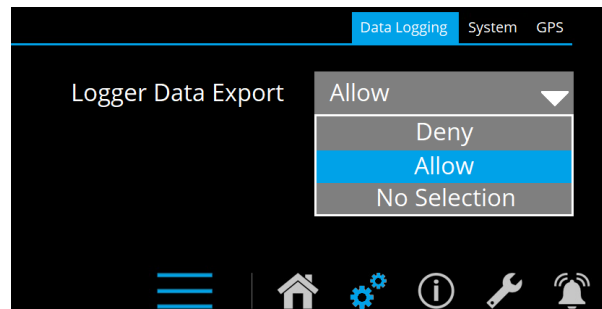

Figure 17: Data Logging Tab – allow or deny exporting data logs of NMEA GPS data

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System Tab

The System tab displays the MFD integration settings that are programmed at installation. Additionally, the user may view the Seakeeper to NMEA 2000 connection status on this tab.
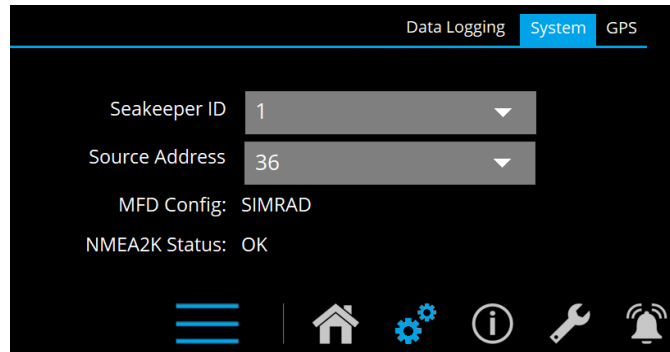

Figure 18: System Tab

GPS Tab

The GPS tab displays the selected device providing GPS data to the Seakeeper for operation. When multiple GPS devices are connected to the NMEA 2000 backbone, users may view them using the up and down arrows. The Seakeeper will automatically use the device with the lowest error signal.
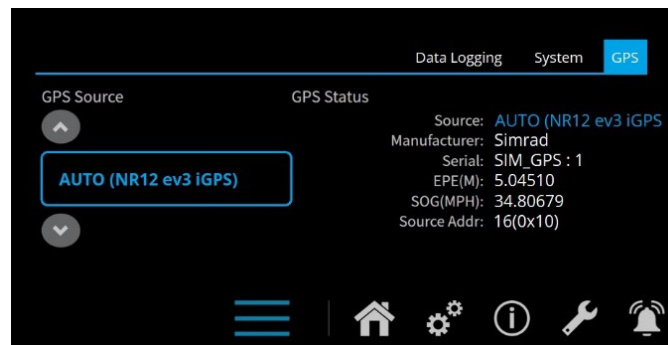

Figure 19: GPS Tab

If an MFD with internal GPS functions provides the GPS source for the Seakeeper, the MFD must be connected to an NMEA 2000 backbone; the Seakeeper will not receive Speed over Ground (SoG) signals through the ethernet.

Performance Info Tab

This tab is available only when the Seakeeper Service Tool app is connected to the Seakeeper. It provides additional operational data:

- Drive input power in watts
- The last spool time in minutes
- The last steady-state power consumption in watts
- Coast power in watts
- Proportional valve integral terms with a reset to "1.0" for diagnostics and troubleshooting.
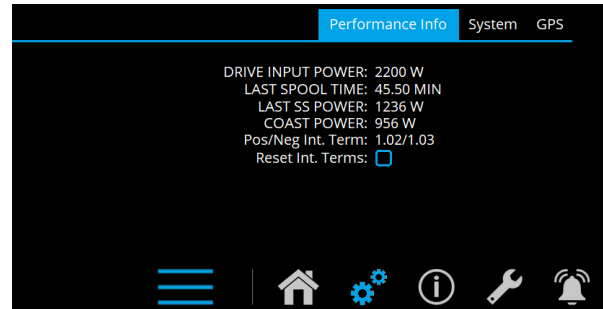

Figure 20: Performance Info Tab

INFORMATION SCREEN

The Information screen displays the Seakeeper model, serial number, software versions, run hours, sea hours, and other information used to service the Seakeeper.
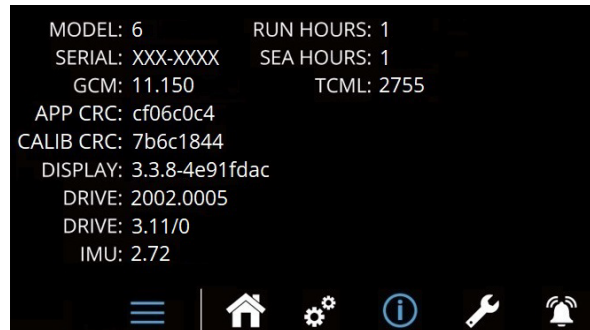

Figure 21: Information screen

SERVICE SCREEN

The Service screen ⚲ displays operating parameters and allows for the service reminder notification reset.
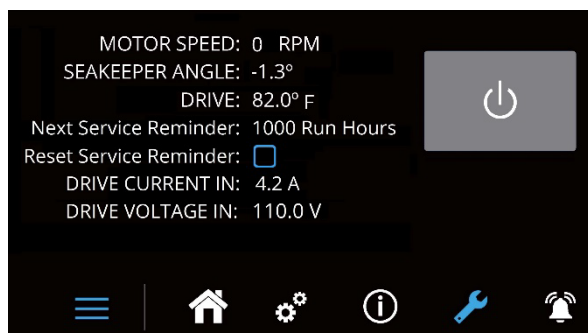

Figure 22: Service screen

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SERVICE SCREEN HIDDEN PAGE

By long-pressing the Service screen icon ![wrench icon], one accesses the overrides page (Figure 23). The overrides allow the enclosure to be manually precessed with a stationary flywheel, run the glycol and seawater pumps, initiate a data log manually, and, on some models, override the latch mechanism. These overrides are only available when the flywheel RPM is zero on the Service screen. If flywheel rotation is detected, the overrides will have "NA" beside each override.
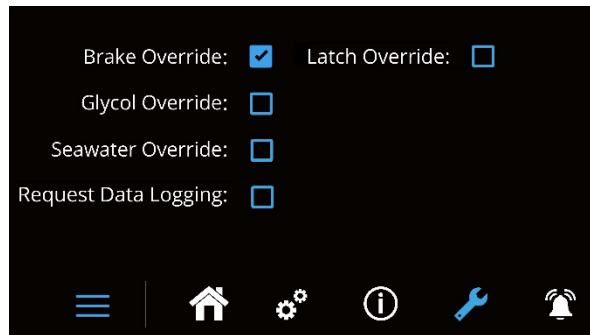

Figure 23: Overrides screen. Latch override visible when brake overridden.

The latch override is only available when the brake override is activated. The override enables testing of the latch mechanism disabled when the brake system is overridden.

Seakeeper models, with updated ConnectBox and GCM software, have an internal data logger capability. The logger function is triggered by an alarm or a user request from the Service screen override page. The logger's activation will capture Seakeeper CAN traffic, GPS positioning, NMEA 2000 SoG signal (speed over ground), and NMEA battery monitor messages. Each data log records 70 seconds of Seakeeper CAN data—60 seconds before the initiation and 10 seconds after initiation. The GCM can store up to 200 CAN data logs for retrieval. Requesting a data log would be especially helpful when a Seakeeper experiences issues but does not create a corresponding alarm.

The Seakeeper manuals website contains operation manuals for each model. The manuals explain how affected users may opt out of allowing their Seakeeper to share this information.

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ALARM HISTORY

The Alarm History screen 🔔 displays alarms and warnings that have occurred in the past and their associated run hours. The scroll bar on the right is used to move up and down through the list.

Figure 24: Alarm History screen

With the latest GCM and ConnectBox software, the Seakeeper stores alarms no longer shown on the history list when cleared. Up to 32 alarms will reappear in the list by connecting the Seakeeper Service Tool app.

STATE OF CHARGE

The DC-powered Seakeepers traditionally use battery voltage depletion to initiate power ramp-downs to extend battery life. When lithium batteries are installed, battery voltage is not an accurate indicator of this function due to a lithium battery's non-linear voltage depletion. State of charge (SoC) is a more precise measurement when using Lithium batteries.

The State of Charge (SoC) is the ratio of a battery's available capacity to its maximum possible charge. A fully charged battery has an SoC of 100%, while a fully discharged battery has an SoC of 0%. The SoC is independent of battery voltage.

To access the Seakeeper Battery Monitoring Configuration screen, **long-press** the battery icon on the DC-powered Seakeeper's application home screen, as seen in Figure 25.

Figure 25: Home screen with SoC monitoring

The screen, Figure 26, displays the current SoC (when a battery monitor is selected), a dropdown menu, and a cut-off threshold slide bar. The cut-off threshold is the SoC value at which the low-voltage notification will be displayed on the Seakeeper app. The slider is adjustable between 10 and 30% SoC with a default value of 20%.
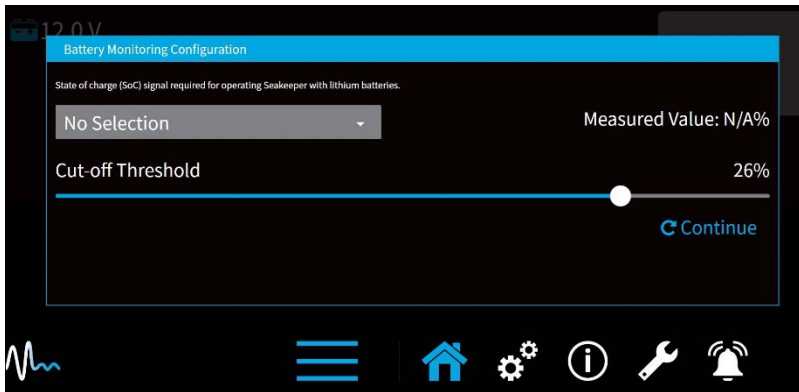

Figure 26: Battery monitoring configuration manager

Owners of DC-powered Seakeepers powered by lithium batteries and with an NMEA 2000 Battery Monitor onboard should select the appropriate battery monitor source from the dropdown menu. The default configuration is voltage monitoring, even when *No Selection* is highlighted.
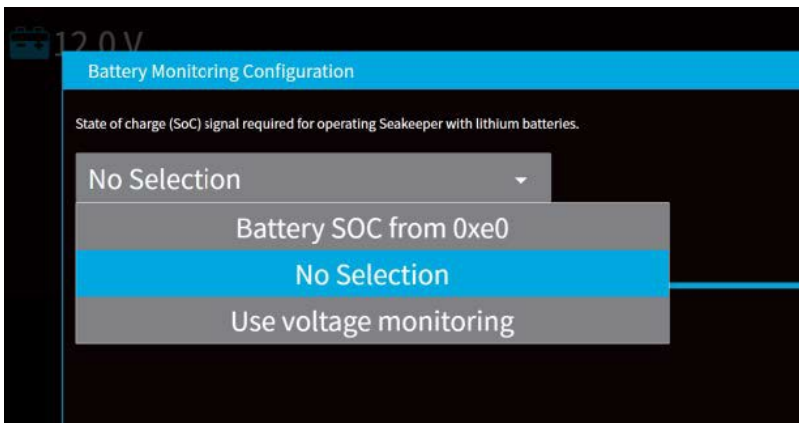

Figure 27: Selecting configuration

The battery monitoring configuration manager includes several notifications: an alert notifying the user of an SoC signal available on the NMEA 2000 CAN when in voltage monitoring configuration, an alarm for a loss of the SoC signal on the NMEA 2000 CAN, and a warning that alerts the user of a low state of charge (based on the threshold bar setting).

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MULTIPLE SEAKEEPER INSTALLATIONS

Vessels with more than one Seakeeper must have unique Seakeeper IDs, which may be between 1 and 10. The Seakeeper ID configuration is specific to the DHCP mode. Seakeeper ID can be set in the hidden Settings screen under the *System* tab (Figure 28).
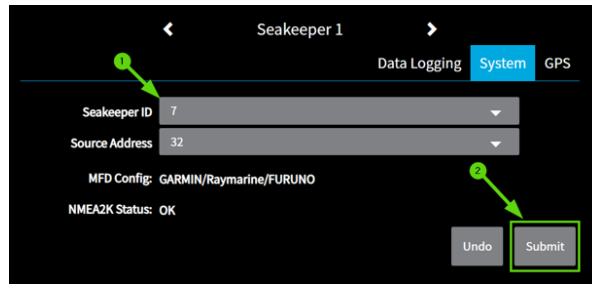

Figure 28: System tab – Seakeeper ID can be changed from the MFD at Seakeeper ID dropdown menu (point 1) and set by pressing Submit (point 2)

After selecting a Seakeeper ID from the dropdown menu, press the Submit button to restart the ConnectBox using the newly selected identification. If more than one Seakeeper shares the same ID number, a warning will appear (Figure 29) to alert the user of the condition. The IDs must be resolved before operation will be allowed. One unit should be adjusted using the previous steps.
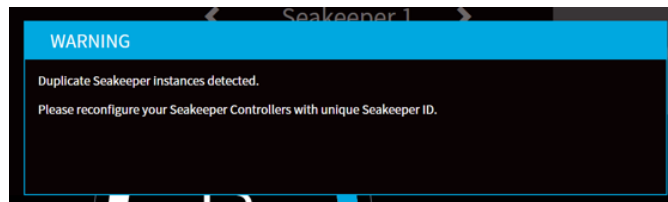

Figure 29: Duplicate ID warning

Because the warning may not allow access to the hidden settings screen, it may be necessary to de-energize all Seakeepers and then energize them one by one, selecting their instances individually.

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By default, ConnectBoxes are configured as DHCP Off with Seakeeper ID=1. The following steps are recommended during initial commissioning to avoid the 'Duplicate Seakeeper instances' warning.

1. Power up just one Seakeeper.
2. Set the DHCP Server mode (On or Off) based on the type of MFD the Seakeeper will connect to.
3. Using the method described earlier, change the Seakeeper ID to a value that is...
   - previously not assigned and
   - different from "1".
4. Repeat steps 1 and 2 until all units have been configured with unique IDs.

On the MFD Seakeeper application, a banner at the top indicates the specific Seakeeper ID being monitored and controlled. Navigating to other Seakeeper instances is achieved by either selecting the arrows in the banner or swiping on the screen left or right (Figure 30).
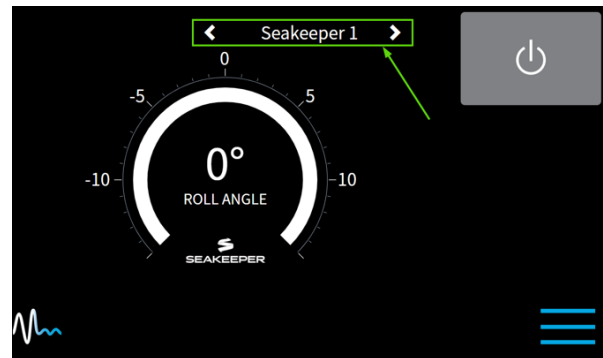

Figure 30: Seakeeper instance (ID) banner

While on the Home page for the first Seakeeper instance, swiping right (or using the left arrow) reveals the page shown in Figure 31. This page is useful for monitoring the status and controlling multiple Seakeeper units from the same MFD location. When more than three Seakeeper units are on the network, swiping right reveals additional Seakeeper instances.
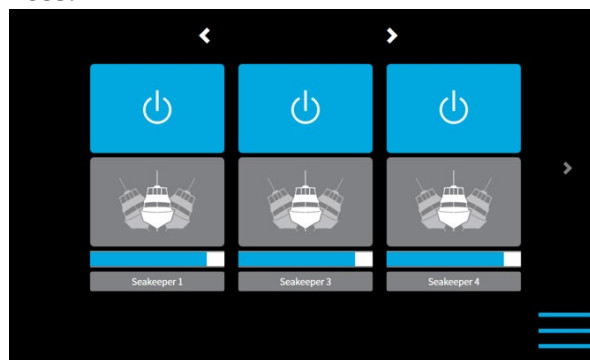

Figure 31: Seakeeper control panel displaying the multiple Seakeepers

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When alarms are active across multiple Seakeeper units, a similar banner indicates the specific Seakeeper ID for which the alarm info is shown (See Figure 32). The arrows on the banner or swiping allow navigation to the other Seakeeper instances.
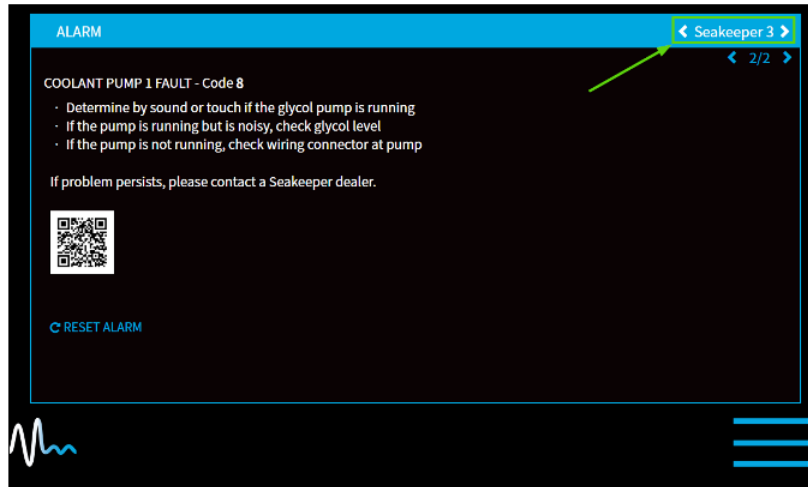

*Figure 32: Seakeeper ID
shown when alarm active*

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Installations with Navico Products

For systems with Garmin, Raymarine, or Furuno MFDs, the only requirement for the Seakeeper ID is that there are no duplicates. For systems with Simrad, Lowrance, or B&G MFDs (Navico products), in addition to no duplicates, one of the units is required to be configured with Seakeeper ID = 1. Ideally, if following the commissioning sequence described earlier, this is automatically achieved by not changing the Seakeeper ID for the final unit after powering it up. To further help with this requirement, the Seakeeper ID for any unit can be easily reset to "1" by a straightforward process: press and hold the brightness button for more than 5 seconds.

If the MFD uses a network hub (that assigns IP addresses), the installation would be performed with the DHCP server OFF.

For Navico products (DHCP server ON mode), the Seakeeper with ID=1 acts as the server. If the ConnectBox of Seakeeper ID=1 in DHCP server ON mode fails, the entire Seakeeper network will drop off. An error message will appear on the MFD app stating that the hosting Seakeeper has stopped responding. Another Seakeeper will require redesignation as ID #1.

When encountering issues in integrating the Seakeepers with an MFD after power cycling, it is crucial to update all software. MFD manufacturers maintain a customer website with the latest software for their devices, and keeping the software up to date is critical to resolving integration issues and maintaining the functionality of the Seakeepers with MFDs.

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CONNECTBOX SOFTWARE AND UPDATING

The software for the ConnectBox user interface is periodically updated. Owners and dealer technicians can access the most up-to-date software version from the Seakeeper Technical Library Software folder. There is a bulletin in the folder describing how to update the display and ConnectBox software. Dealers may also obtain the up-to-date ConnectBox software from the Seakeeper Service Tool application.

A thumb drive, an OTG cable, and a Torx-8-bit driver is required to update the ConnectBox software. Seakeeper sells a kit (P/N 20479) on the Partner Center website that contains the required tools. This kit is necessary even if using the Seakeeper Service Tool application to obtain the software.

The side panel shown in Figure 33 provides access to the ConnectBox micro-USB connector (to which the OTG cable connects).
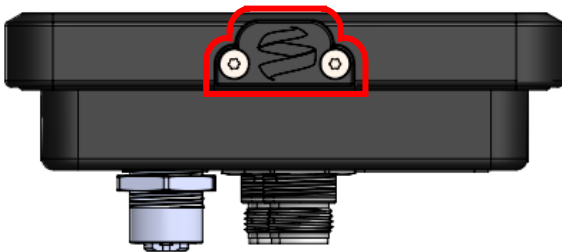

Figure 33: ConnectBox side panel micro-USB plug and two Torx-8 screws

The currently loaded ConnectBox software version can be viewed from the application's Information screen beside *DISPLAY*. See Figure 34.
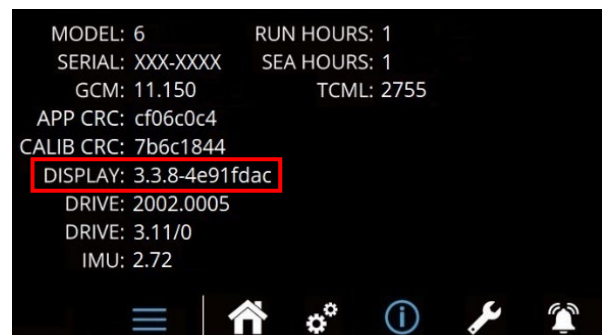

Figure 34: Information screen

If an optional 5" display is used, the ConnectBox software version will be displayed on the Information screen on the 5" display, as shown in Figure 35.

Figure 35: Information screen of 5" display with ConnectBox

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ConnectBox is updated by following the steps provided here and in the Seakeeper Technical Library Software folder. Troubleshooting software installation is found in the Technical Library documents.

1. Install the updated software onto a thumb drive from the Technical Library or the Seakeeper Service Tool app.

2. Remove the ConnectBox micro-USB port cover, seen in Figure 33, using a T-8 torx bit.

3. Insert the micro-USB connector into the ConnectBox micro-USB port (Figure 36).

4. Plug the USB thumb drive into the OTG cable.

5. Wait for 5 to 10 minutes as the software loads.

6. When loading has completed, as noted by the spool bar and Seakeeper logo illuminated, remove the OTG cable from the ConnectBox.

7. Install the micro-USB port cover.

Figure 36: OTG cable connected to ConnectBox

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TROUBLESHOOTING INTEGRATION

More detailed troubleshooting can be found in the SWI-106 and SWI-206 documents. The most common issue with MFD integration is the Seakeeper app not loading on the MFD once connected. The following steps may be helpful in identifying the issue:

1. Check physical cable connections at the back of the ConnectBox, the MFD, and the connectors and hubs.

2. Update both the MFD and Seakeeper software to the most up-to-date versions.

3. Restart the MFD and then the Seakeeper.

4. To use a single Seakeeper unit application, check that the Seakeeper ID is "1".

For multiple Seakeeper applications, check that a Seakeeper is designated as Seakeeper ID "1" and the other units are identified with increasing ID numbers (2, 3, …).

Additional support is always available through the Seakeeper Product Support Team at support@seakeeper.com.