



# INSTALLATION MANUAL

(ver 2.7 15/10/22)

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## **Section 1 - Equipment Supplied**

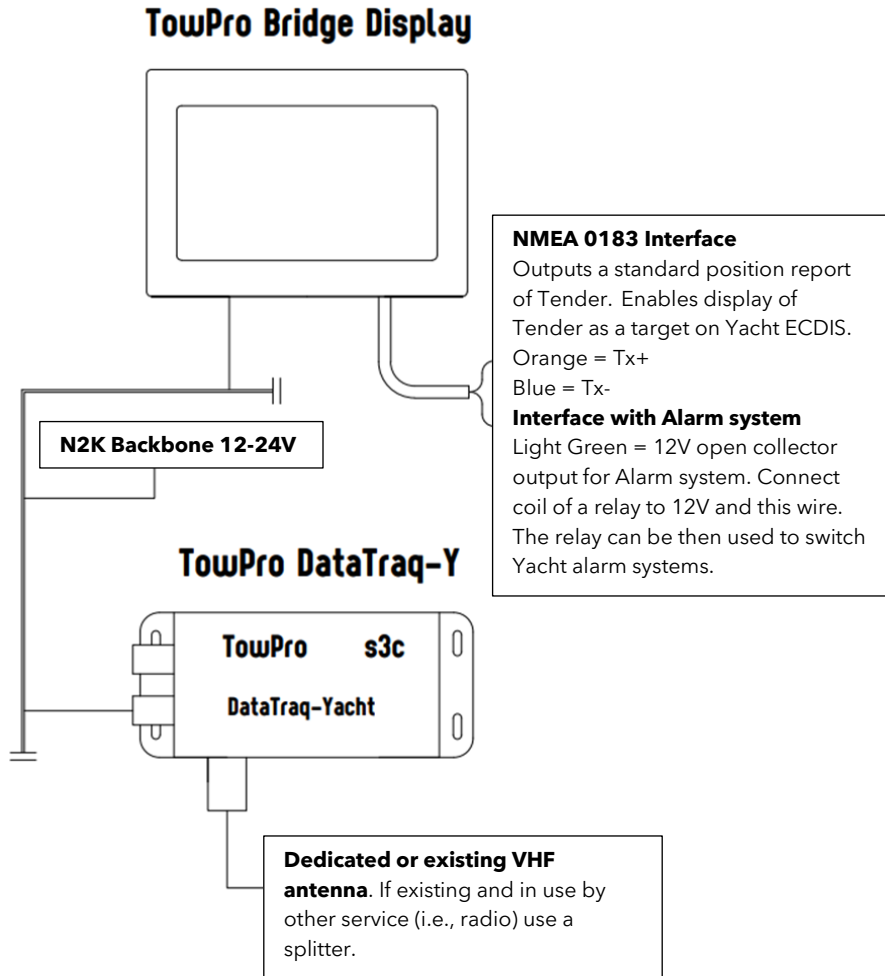
- 1) TowPro Bridge Display.
- 2) TowPro DataTraq-Y.
- 3) TowPro Processor.
- 4) TowPro DataTraq-T.
- 5) TowPro Interface.
- 6) 6 x 1m M12 5-way drop cables.
- 7) 1 x 1m M12 12-way drop cable.
- 8) 2 x Deutsch Cables for TowPro Interface.

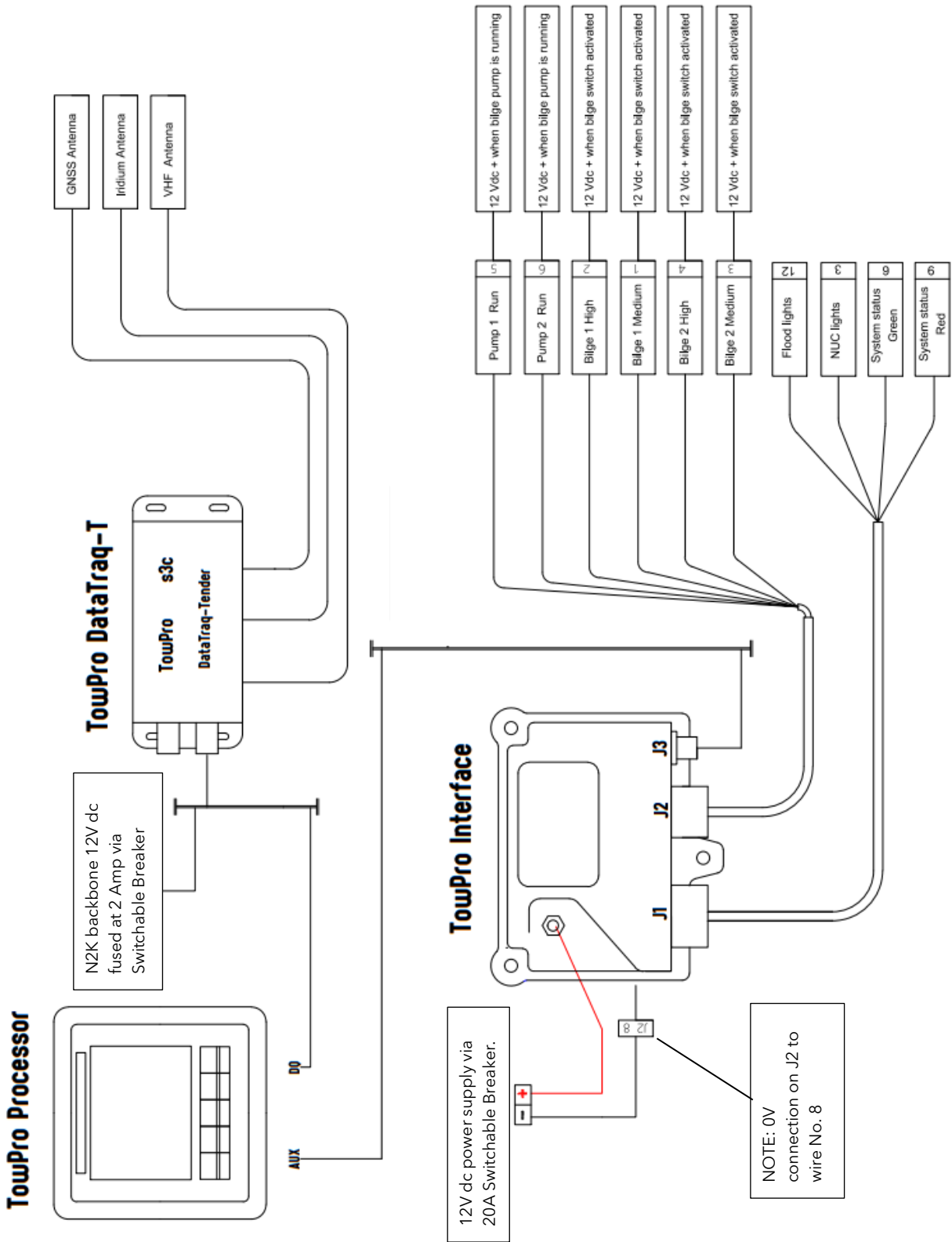
### **Customer required equipment**

Other equipment required for installation may be part of existing electrical service circuits within both vessels and/or require aesthetic judgment on specification (antennas) hence are not supplied.

- 1) VHF antenna on Yacht (an existing one can be used with the splitter mentioned above).
- 2) 3 x A2K-SBN-1 Actisense backbone.
- 3) SPL500 Splitter for Yacht installation (if no dedicated antenna available).
- 4) 24V/12V breaker for Yacht installation and associated wiring.
- 5) 24/12V relay for interfacing with Yacht Alarms.
- 6) Dedicated VHF antenna on Tender (and wiring to suit).
- 7) Dedicated GPS antenna on Tender (and wiring to suit).
- 8) 24V/12V breaker for Tender installation and associated wiring.
- 9) Iridium antenna for the tender.

## Section 2 - TowPro Yacht and Tender installation layout





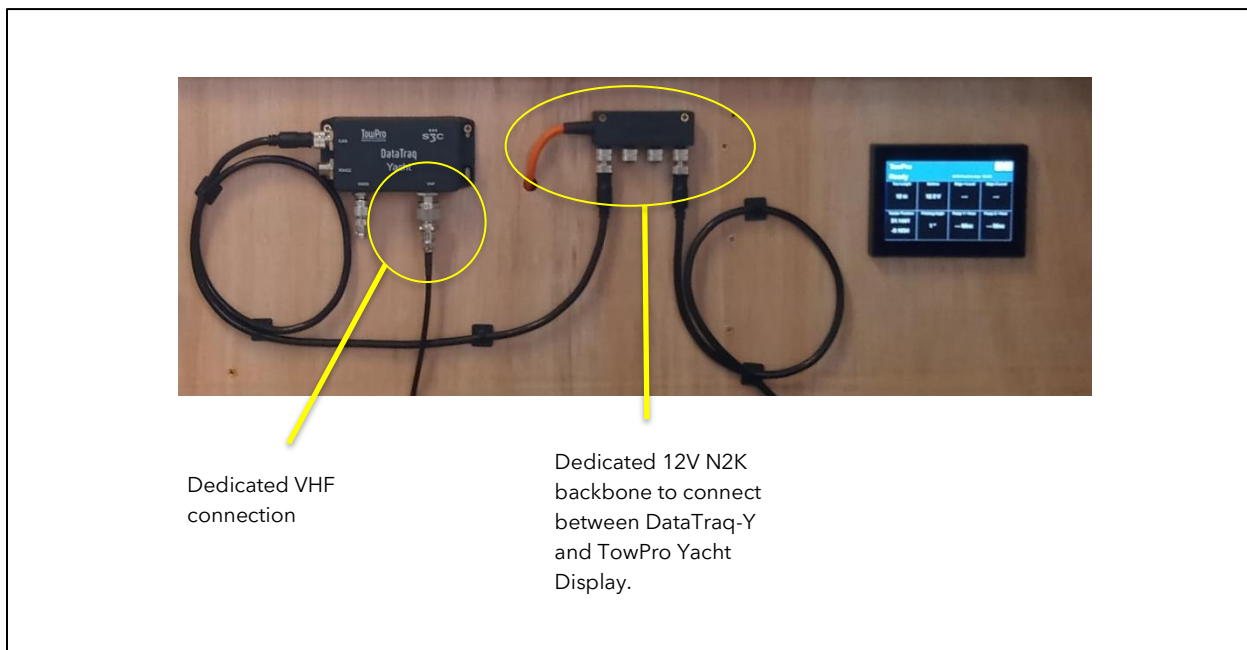
NOTE: Throughout this manual, we describe “turning off / on” the Bridge Display and Tender

Processor. In all cases, this means de-powering or re-powering the relevant backbone(s). For the Tender, ensure that the backup power supply for the second backbone is switched off as well as the main supply.

## 2.1 - Example TowPro Installation (Tender)



## 2.2 - Example TowPro Installation (Yacht)



## Section 3 - Installing TowPro

### 3.1 - Installing TowPro on the Yacht

1. Connect the TowPro Bridge Display and the DataTraq-Y to a dedicated N2K backbone
  - It is essential that no other equipment is connected to this backbone
2. Connect the DataTraq to a VHF antenna
  - DataTraq on the yacht is only a receiver, it should be connected to a VHF antenna as specified in the *Installation Planning* tables
3. Provide 12-24VDC power to backbone, protected at 2A

### 3.2 - Installing TowPro on the Tender

There are three main components to position: The TowPro Processor, The TowPro Interface and the TowPro DataTraq-T. They are connected by two separate N2K backbones (they must not share the same backbone) from the TowPro processor.

The backbone connecting DataTraq to Processor should have a secure power source (eg engine start battery), to ensure it will continue broadcasting AIS and Iridium safety information even if the main service batteries powering the backbone connected to Processor and Interface are no longer viable.

The TowPro Processor is a panel mounted screen used to configure the system. During start-up, users need to be aware of the system's status. They can either check it using the screen or using the console indicator light outputs from the TowPro Interface. If using the indicator lights, the processor can be located elsewhere.

The TowPro Interface interfaces with bilge sensors and controls COLREGs lights, floodlights, and the console indicator lights. It should be mounted in a protected area with access to bring the bilge pump sensor and bilge switch wiring to it along with the "Not Under Command" or floodlight wiring.

The DataTraq-T provides the VHF and Iridium communications, plus the motion sensing for the tender. The unit requires mounting vertically with the antenna cables facing downwards either on a fore and aft or athwartships panel. *Note, the orientation is recorded in the Processor 'Settings Menu' at configuration.*

#### TowPro system installation on the tender

- 1 - Connect the TowPro Processor and the DataTraq to a dedicated N2K backbone (2 x M12 5-way 1m cables provided)
- 2 - Provide 12VDC reserve power to the backbone protected at 2A

- 3 - Connect the TowPro Processor and the TowPro Interface to a separate dedicated N2K backbone (2 x M12 5-way 1m cables provided)
- 4 - Provide 12VDC power to the backbone protected at 2A
- 5 - Connect the DataTraq to a dedicated VHF antenna
- 6 - Connect the DataTraq to a combined GNSS + Iridium antenna

### Interfacing TowPro to the tender

The TowPro interface unit is supplied with short, prewired plugs which can be extended or replaced using standard Deutsch connections. J1 is a DT06-12SA and J2 is a DT06-08SA-E003.

#### J1 - Outputs:

J1 - outputs (+12VDC supply)	
Wire 3	COLREG lights
Wire 12	emergency lights (eg strobe, floodlights)
Wire 6	'Red' console indicator
Wire 9	'Green' console indicator

The above are limited to 5 amps each, so the Interface requires a protected 20-amp positive to the 6mm stud on its top, and a negative bus bar linked to the input ground wire 8 on the J2 Harness (see below).

#### J2 - Inputs:

J2 - inputs (+12VDC signal when active)	
Wire 1	Bilge 1 - medium level
Wire 2	Bilge 1 - high level
Wire 3	Bilge 2 - medium level
Wire 4	Bilge 2 - high level
Wire 5	Bilge pump 1 run
Wire 6	Bilge pump 2 run
Wire 8	0VDC

The 4 bilge level inputs require a 12VDC signal when the sensor is activated, for example:

- A normally open switch which connects the Interface input to 12VDC when closed, or
- An 'active' level sensor which provides a 12VDC signal to the Interface input when activated



The 2 bilge pump inputs require a +12VDC from the pumps when the pumps are operating, for example:

- A “pump running” indicator on the console, or
- A sense wire connected to the switched 12VDC input to a pump

#### Installing TowPro antennas on the tender

TowPro requires:

1. a VHF antenna: this transmits safety indicator data to the superyacht during the tow, and also transmits emergency AIS messages when the tender is adrift
  - it should therefore be mounted as high as acceptable to provide best range
2. a GNSS antenna: this should be mounted to provide good visibility of the sky
3. (optional) an Iridium antenna: this should be mounted to provide good visibility of the sky

## Section 4 - Quick Guide to Configuration

The TowPro Bridge Display on the yacht, and the TowPro Processor on the tender both require configuration.

### Configuring TowPro Bridge Display

There are two stages in configuring the Bridge Display:

1. Input Settings
2. Set-up Bridge Alerts

Both of these are accessed:

- click on the "Config" icon on the main TowPro screen
- click on SETTINGS in the CONFIG MENU screen
- takes you to SETTINGS MENU screen



1. **Input Settings** by clicking on the following:

Short Distance	toggles between displaying tow distance in meters or feet
Tender MMSI	enter this MMSI
Yacht MMSI	enter this MMSI
Data Timeout	Do NOT change from default 90 secs
Optionally change main TowPro screen layouts, and/or toggle the key beep	

then "swipe up" to see and click on "Alerts" to take you to "ALERT SETUP MENU"

2. **Set-up Bridge Alerts**

- click on "Add New Alert"
- scroll left and right to select the variable name
- scroll left and right to decrease or increase the threshold value
- scroll left and right to select the condition under which the Alert is triggered
- swipe right to complete adding the new alert

This new alert should now appear in the list


- Click on  to edit
- Click on  to delete

When the Bridge Alerts are all correctly set, swipe right 3x to return to main TowPro screen.

**Configuration of the Bridge Display is now complete**

## Configuring TowPro Processor

The TowPro processor is configured via the "SETTINGS MENU":

- Press and hold  for 3 seconds
- Key 'Down' to "Settings"
- Press 'OK' to enter "SETTINGS MENU"

Input settings as follows to configure:

Bleep	toggles key beep ON and OFF
Yacht MMSI	enter this MMSI (see <i>Installation Preparation</i> tables)
Tender MMSI	enter this MMSI (see <i>Installation Preparation</i> tables)
GPS Antenna Position	enter distances in metres
DataTraq Orientation <sup>1</sup>	enter physical orientation of installed DataTraq ( <i>must be mounted on a vertical surface</i> )
Position Timeout	Do NOT change from default 90 secs
Sleep Time	(screensaver) Normally leave 'Disabled'
Acceptable Distance	enter distance (see <i>Installation Preparation</i> tables)

Note 1: Selecting 'DataTraq Orientation' causes the DataTraq to auto-calibrate list and trim. This should only be done when:

1. DataTraq is installed in its final location
2. The tender is at neutral list and trim

Press 'Back' 2x to return to the main TowPro Processor display.

Configuration of the Processor is now complete

## Configuring TowPro - An Overview

Both the Bridge Display and the tender Processor must be configured before use:

- the Bridge Display is a touch screen:
  - tap on items to select, swipe right to go back
- the TowPro Processor has 5 buttons:
  - “soft keys” to access and navigate menus, and to enter settings

You must:

1. enter the correct MMSIs for the yacht and tender on *both* the Bridge Display and tender TowPro Processor
2. set the orientation of the DataTraq unit and calibrate via the TowPro Processor
3. set the correct maximum Acceptable Distance on the TowPro Processor.

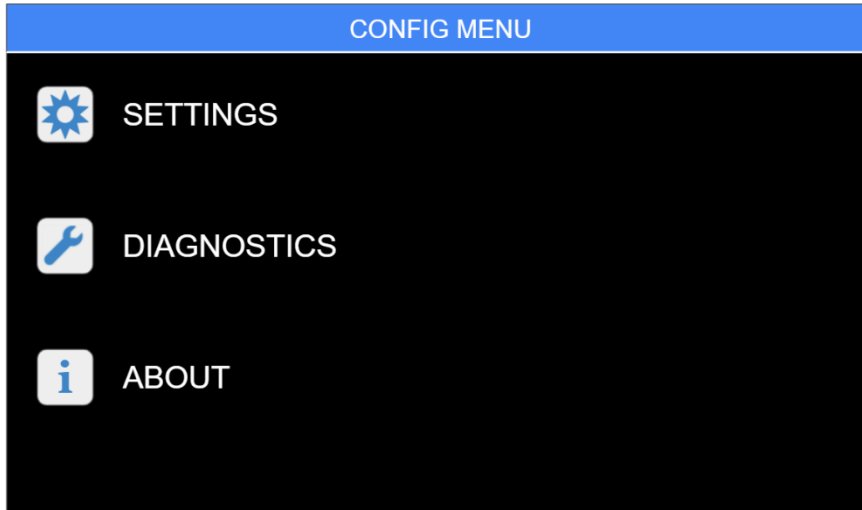
**You must** review and set up bridge alerts on the Bridge Display.

**We recommend** you review all the settings on each unit. Each yacht is different, and the settings which can best help you protect your tow are different too.

## Section 5 - Configuring the Bridge Display

### 5.1 - Config Menu

Tap the "cog" icon in the top right to access the CONFIG MENU. To leave this menu and return to the normal display, swipe 'right'.

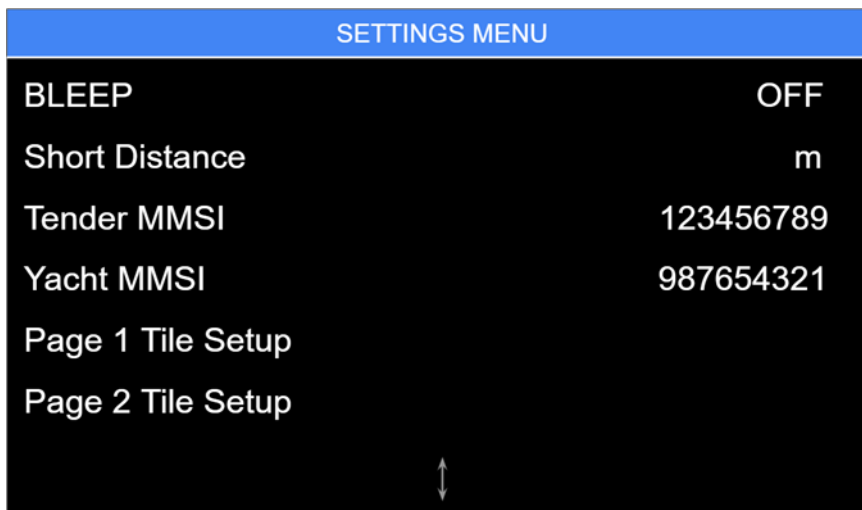


**Settings:** Tap to access user SETTINGS MENU, swipe 'right' to return to the CONFIG MENU.  
**Diagnostics & About:** These options are used when troubleshooting with TSM Support, and should not otherwise be accessed by users

### 5.2 - Settings Menu

The SETTINGS MENU is used primarily to:

1. Enter the MMSIs for the yacht and tender
2. Personalise the tile layout on the display
3. Set specific Bridge Alerts appropriate for yacht operations and the type of tender



[Note that the menu is longer than can be displayed on the screen, swipe 'up' and 'down' to view the entire menu.]

A full list of settings is below. When initially configuring the system, we advise you check through all of these, but at minimum you **must** enter the Tender and Yacht MMSIs:

- **BLEEP:** Tap to toggle the display's bleep on or off
- **Short Distance:** Tap to toggle tow length between feet and meters
- **Tender MMSI:** Tap to enter the tender's MMSI. Swipe right to return to SETTINGS if tapped accidentally
- **Yacht MMSI:** Tap to enter the yacht's MMSI. Swipe right to return to SETTINGS if tapped accidentally
- **Page 1 Tiles Setup:** Tap to configure which safety indicators are shown on the display in indicator page 1 (User 2.1). Swipe up or down to scroll through the menu, and tap ← or → to select which tile should be in each position. Swipe right to return to SETTINGS once the desired layout is set
- **Page 2 Tiles Setup:** Tap to configure which safety indicators are shown on the display in indicator page 2 (User 2.1). Swipe up or down to scroll through the menu, and tap ← or → to select which tile should be in each position. Swipe right to return to SETTINGS once the desired layout is set
- **Bridge Alerts:** Tap to access ALERT SETUP MENU and set up bridge alerts. See below for full details
- **Data Time-Out: [not usually changed]** Set the period after which the system should trigger a Data Lost alarm if it does not receive an update from the tender while towing (User 2.6). The default is 90s and the minimum is 60s. Tap ← or → to decrease or increase the period, holding to quickly decrease/increase

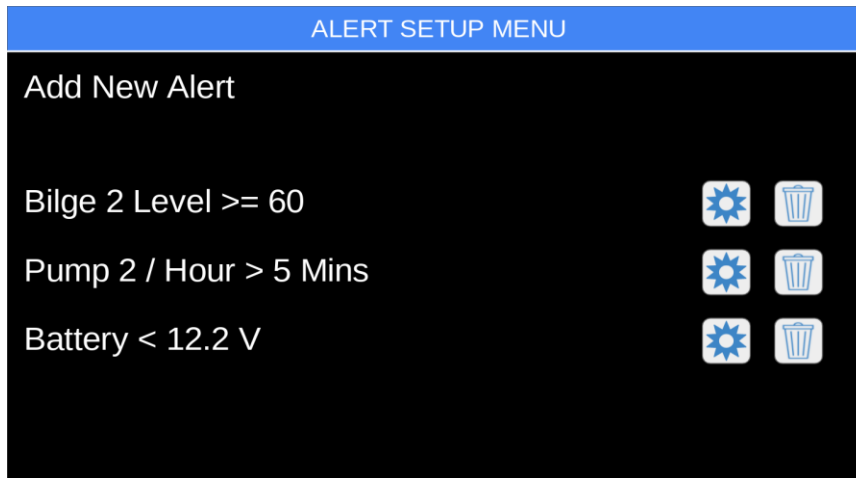
### 5.3 – Alert Setup Menu

Users can define conditions in which the system should trigger a bridge alert, based on a safety indicator. Alerts could be that the tender's battery voltage has dropped below a certain threshold, or that a bilge pump has been running a certain proportion of the last hour, for example. Bridge alerts are only triggered **while towing** not while in Standby or Ready.

#### Setting Bridge Alerts

Any number of bridge alerts can be specified by the user via the ALERT SETUP menu:

- Tap "Add New Alert" to create a new alert, or tap the cog next to an alert to edit an existing alert.
- To delete an alert, tap the rubbish bin next to it.
- Once you have finished setting alerts, swipe right to return to SETTINGS.



There are three items to set for each alert:

- **Safety Indicator:** Select the desired indicator with ← and →
- **Threshold:** Set the threshold the alert should trigger at. A table of what each threshold represents can be found below. Tap ← and → to adjust the value, holding them to quickly decrease / increase
- **Condition:** Select whether the alert should trigger when the indicator is greater than, equal to or greater than, less than, or equal to or less than the threshold

Safety Indicator	Threshold Meaning
Bilge 1 (2) Level	The level of water in each bilge, a numerical setting of: 30 corresponds to activation of the automatic bilge pump, 60 to the "Medium" float switch activating, 100 to "High" float switch activating
Pump 1 (2) / Hour	The number of minutes in the preceding hour that the automatic bilge pump has been running
Battery	The voltage output of the tender's battery
List or Trim Angle	The mean value for the tender over the previous minute
Rolling or Pitching Angle	The difference between maximum and minimum value over the previous minute
Surging Speed	The difference between maximum and minimum tender SOG over the previous minute
Yawing Angle	The difference between maximum and minimum tender COG over the previous minute
Tow Length	The current length of the tow, ie. distance to tender

Your TowPro system is shipped with the following alerts set by default:

- Bilge 1  $\geq 60$
- Bilge 2  $\geq 60$
- Pump 1 / Hour  $\geq 5$  mins
- Pump 2 / Hour  $\geq 5$  mins
- Battery  $\leq 12.3$  V



## Section 6 - Configuring the Tender Processor

### 6.1 - Config Menu

The tender processor is configured via the CONFIG menu, accessed by holding down the right button for 3 seconds.

**Reset Adrift:** Used to take the system out of adrift mode and back to normal after recovery. Restarting the system has the same effect

**Settings:** Access system settings (see below)

**Diagnostics & About:** These options are used when troubleshooting with TSM Support, and should not otherwise be accessed by users



### 6.2 - Settings Menu

A full list of SETTINGS is below. When initially configuring the system, we advise you check through all of these, but at minimum you **must** enter the Tender and Yacht MMSIs and review the Acceptable Distance:

- **Bleep:** Toggle the display's bleep on or off
- **Yacht MMSI:** Set the tender's MMSI. Press okay, then use ← and → to move between digits, and - and + to adjust
- **Tender MMSI:** Set the yacht's MMSI. Press okay, use ← and → to move between digits, and - and + to adjust
- **GPS Antenna Position:** Used to correctly offset the position of the antenna on the tender
- **DataTraq Orientation:** Used to correctly orient and calibrate the DataTraq unit. Full details below

- **Position Timeout:** Period after which the tender moves to “Possibly Adrift” if it doesn’t receive positions from either its own GPS, or the yacht’s AIS
- **Sleep Time:** Period after which the screen turns off, to save power (the system stays on, and the display can be woken with any button)
- **Acceptable Distance:** The distance at which the tender should move to adrift mode. Use - and + to adjust

### 6.3 – DataTraq Orientation

The DataTraq unit must be mounted correctly in a permitted orientation (see the Installer manual).

In the SETTINGS menu select ‘DataTraq Orientation’

- Select the correct orientation using the buttons ‘A’, ‘B’, ‘C’, ‘D’ - your selection will be highlighted with a dotted yellow square
- Press ‘OK’ to enter
- This will program the correct orientation AND cause the DataTraq to calibrate itself
- [Alternatively - to exit without programming, simply press ‘OK’ without having pressed ‘A’, ‘B’, ‘C’, ‘D’ button]

To confirm successful calibration, select ‘DataTraq Orientation’ a second time:

- Your selected orientation should now be highlighted with a solid green square
- Exit using OK without having pressed a button

A long beep from the tender processor after 10 seconds indicates that orientation / calibration has failed, and you should repeat the process.

## Section 7 - Troubleshooting

Issue	Cause	Remedial Action.
"TowPro Waiting" constantly displayed on TowPro Tender Processor. GPS position age constantly increases and never stops.	No reception of Yacht AIS transmissions	Check MMSI number settings for both vessels on TowPro Tender processor are set correctly.
		Ensure drop cables are connected to the correct ports on the back of the TowPro Processor.
		Ensure VHF antenna connections are sound.
		Ensure AIS on yacht is broadcasting.
"TowPro Waiting" constantly displayed on TowPro Tender processor. GPS position age increases to approximately 20 seconds and then resets to zero.	No GPS reception on Tender DataTraq-T	Check GPS antenna connection on TowPro DataTraq-T is sound.
"Tender Possibly Adrift" displayed on TowPro Tender Processor. GPS position age increases to approximately 20 seconds and then resets to zero.	Intermittent GPS reception on Tender DataTraq-T	Check GPS antenna connection on TowPro DataTraq-T is sound.
"Tender Possibly Adrift" displayed on TowPro Tender Processor. GPS position age constantly set at 00:00.	Intermittent VHF reception of Yacht AIS transmissions	Ensure VHF antenna connections are sound.
Nothing reported on TowPro Bridge display.	No DataTraq-Y reception of Data-T transmissions/	Check MMSI number settings on TowPro Tender processor are correct.
	Poor GPS reception of TowPro DataTraq-T	Check GPS antenna connection on DataTraq-T unit. Ensure GPS reception by checking GPS position age displayed on the TowPro Tender Processor is 00:00.
Tender Position not reported on TowPro Bridge display, but Battery, Bilge Levels are.	TowPro DataTraq-T not receiving AIS from yacht.	Check AIS on yacht is broadcasting. Ensure VHF antenna connections are sound.