

OPERATOR'S MANUAL

DYNAMIC TRIM CONTROL SYSTEM

SERIES S

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This product is protected by patents, design patents, patents pending, or design patents pending.

Declaration of conformity

This product conforms to the following Electromagnetic Compatibility (EMC) regulations and standards for use in marine environments.

CE	EN 60945
FCC	CFR 47, Part 15, Subpart B
DNV	Std No. 2.4
IACS	E10
GL	GL VI 7.2

Correct installation according to Zipwake documentation is required to ensure that EMC performance is not compromised.

The product follows ABYC recommended practices, E-11: AC and DC Electrical Systems on Boats and H-27: Seacocks, thru-hull fittings and drain plugs.

Zipwake Series S is NMEA 2000* compatible (software release 2.6 or higher). NMEA Network Message database version 2.101.

Documentation and technical accuracy

To the best of our knowledge, the information in this document was correct at the time it was produced. However, Zipwake cannot accept liability for any inaccuracies or omissions it may contain. In addition, our policy of continuous product improvement may change specifications without notice. As a result, Zipwake cannot accept liability for any differences between the product and this document.

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Dispose of this product in accordance with the WEEE Directive.

 The Waste Electrical and Electronic Equipment (WEEE)

The WEEE Directive does not apply to some Zipwake parts; however we support its policy and ask you to be aware of how to dispose of this product.

Product Registration

Register your product online at www.zipwake.com/register. Registration enables access to available software upgrades etc.

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DYNAMIC TRIM CONTROL SYSTEM
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1 IMPORTANT INFORMATION

1.1 READING THE OPERATOR’S MANUAL

Make sure that you read and understand this Operator’s Manual before using the Dynamic Trim Control System. If you have trouble understanding any part of the manual, please contact your retailer for further information.

 **IMPORTANT**

Information presented as IMPORTANT may lead to system or property failure or damage if it is disregarded.

 **WARNING**

Information presented as a WARNING may lead to personal injury if it is disregarded.

NOTE!
Information presented as a NOTE! is important information about the Trim Control System’s operation and features.

1.2 GENERAL SAFETY INSTRUCTIONS

The Trim Control System is an accessory that delivers a more comfortable boat ride, better performance and improved fuel consumption. Keep in mind that it under no circumstances takes away the responsibility from the helmsman to maneuver the boat in a safe way.
Take your time to get familiar with the system and its functions in calm waters and get used to how it will affect your boat’s handling before using it under normal conditions.

 **WARNING**

The Trim Control System may affect your boat’s capacity to stay on course. Always pay close attention to steering the boat.

 **WARNING**

Never try to force the Interceptor blades by hand. Watch out for sharp edges when close to the Interceptors. Turn off the system when the boat is docked, at anchor or hauled out of the water.



1.3 SPECIAL OPERATING NOTES

 **IMPORTANT**

The Dynamic Trim Control System should be the main system controlling your boat’s running trim. If the boat has an outboard engine or a sterndrive, their respective trim (propeller shaft inclination) should be set to zero, except possibly at high speeds, or if automatic control is added when necessary in addition to the basic trim provided by the Interceptors.

2 SYSTEM OVERVIEW

The Dynamic Trim Control System Series S incorporates a state-of-the-art family of durable, fast-acting Interceptors and unique 3D controls which provide the driver with unmatched, user-friendly, intuitive and precise control of running trim, heel or heading. The system is fully automatic and significantly enhances the boat's performance, fuel economy, comfort and safety.

KEY FEATURES

AUTO PITCH CONTROL

The system will automatically adjust the trim or pitch angle of your boat, minimizing wave resistance for best performance and comfort at all speeds (chapter 7).

AUTO ROLL CONTROL

The system will automatically eliminate uncomfortable and dangerous boat roll. The system constantly works to keep the boat level or to make balanced (banked) turns (chapter 8).

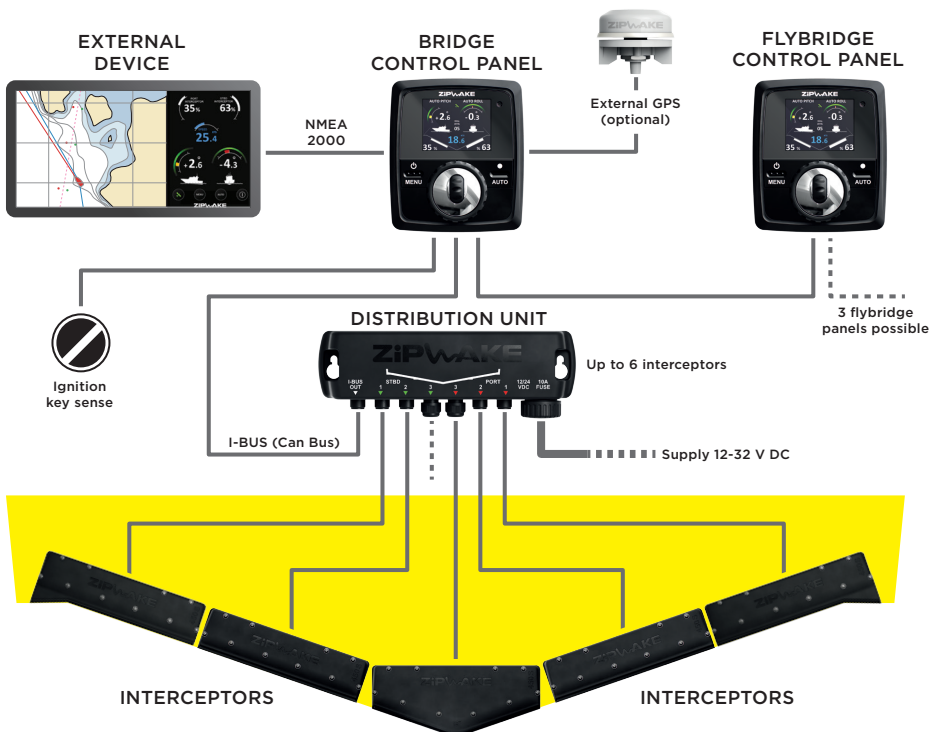
MANUAL ATTITUDE CONTROL

The boat's running attitude (chapter 6.1) can be manually controlled by using the control wheels. The Pitch wheel controls the trim or pitch angle, while the Roll wheel normally controls the list or roll angle. In Steering mode (chapter 6.2), the Roll wheel controls the boat's heading or yaw angle.

EXTERNAL MONITORING AND SYSTEM CONTROL

The system can be monitored and/or controlled from external devices, e.g. multifunction displays or plotters via its NMEA 2000® interface (chapter 14). The Programming Manual provides comprehensive information on NMEA 2000 system integration.

SYSTEM OVERVIEW



3 INSTALLATION

Follow the steps in the Zipwake Series S Installation Guide for mounting and connecting Interceptors, the distribution unit, control panel(s) and extra GPS on your boat.

3.1 CONNECTING AN NMEA 2000 GPS

 **IMPORTANT**

The system's automatic control functions remain off/turn off when no GPS speed signal is available.

Each control panel has a built-in GPS antenna, but additional GPS signals can be acquired from an NMEA 2000 network GPS source, e.g. a plotter or autopilot. The system will automatically use the source with the best reception. Refer to the Installation Guide wiring diagram for information about connecting to an NMEA 2000 network.

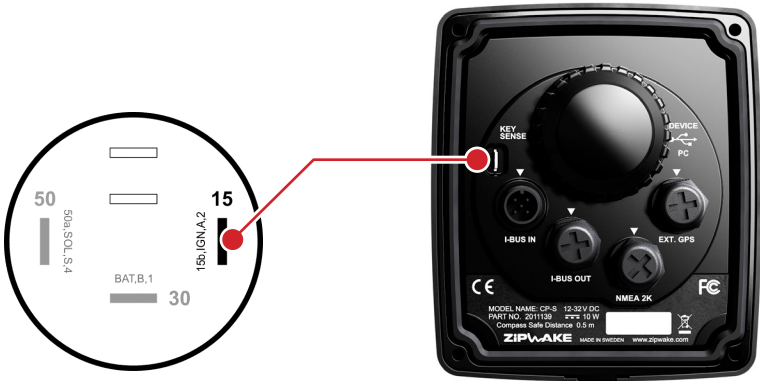
3.2 CONNECTING AN EXTERNAL GPS

If there is only one helm station with a shielding top (roof), and a lack of other accessible GPS sources, an external GPS signal from a Zipwake External GPS Antenna (part no. 2011240) may be required. Refer to the Installation Guide wiring diagram for information about connecting the external GPS.



3.3 IGNITION SWITCH INSTALLATION

Connect the boat's ignition switch to the Key Sense input on the back of the control panel so that the system is automatically turned on/off when the ignition (engine) is turned on/off. Refer to the Installation Guide wiring diagram.



NOTE!

If an extra control panel is installed (multiple helm stations, e.g. a flybridge), connect the boat's ignition switch to the Key Sense input in the same way as on the main control panel.

4 CONTROL PANEL OVERVIEW



4.1 BASIC PANEL FUNCTIONS

- 1

Display
Sunlight readable 2.4" TFT transfective, 320 x 240 pixels, color display.
- 2

Light sensor
The light sensor automatically adjusts the display brightness and shifts between Day and Night mode when the display mode is set to Auto.
- 3

POWER/MENU button
Press and hold for power on/off.
- 4

AUTO button
Press and hold for Auto Pitch & Roll Control on/off, then press for Auto Roll Control off/on.
- 5

Roll wheel
Turn for manual roll control. Turn to adjust the roll level in Auto Roll Control mode. Turn to steer the boat in Steering mode. Press down for special functions: e.g. save current trim settings and activate Steering mode.
- 6

Pitch wheel
Turn for manual pitch control.

4.2 MENU NAVIGATION AND SOFTKEY FUNCTIONS

- 3

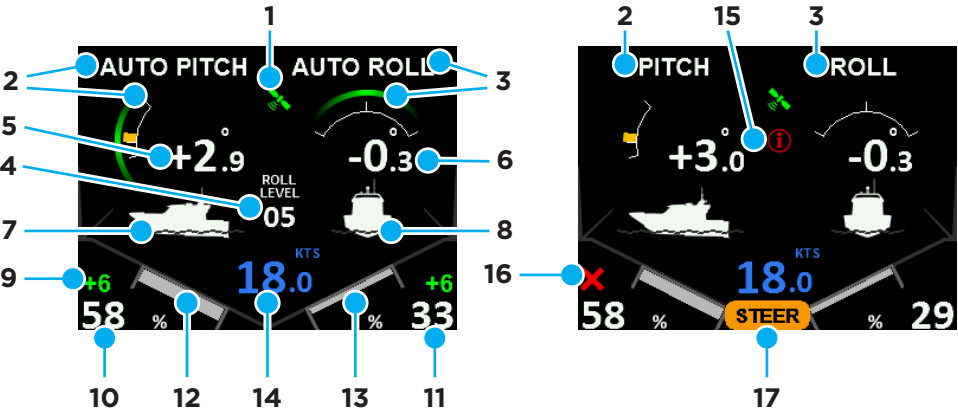
POWER/MENU button
Press to enter the menu.
Softkey for BACK, CANCEL.
- 4

AUTO button
Softkey for OK, NEXT, SELECT, RESET, EDIT, SAVE, START, DONE and all choices in pop-up windows.
- 5

Roll wheel
Turn to scroll between menu selections. Turn to adjust menu values. Turn to the desired speed when editing the Auto Pitch Control Curve. Press to select (same as AUTO button SELECT).
- 6

Pitch wheel
Turn to scroll between menu rows. Turn to adjust menu values. Turn to adjust the Interceptor extension at a desired speed when editing the Auto Pitch Control Curve.

4.3 MAIN DISPLAY OVERVIEW



1	GPS Status: Green – GPS fix OK Yellow – No GPS fix Red – No GPS connection
2	AUTO PITCH and Green Arc: Indicate that Auto Pitch Control is activated. PITCH: Indicates manual pitch control - Auto Pitch Control turned off.
3	AUTO ROLL and Green Arc: Indicate that Auto Roll Control is activated. ROLL: Indicates manual roll control - Auto Roll Control turned off.
4	AUTO ROLL LEVEL: Indicates current auto roll level.
5	Pitch Angle: Pitch angle indicator in degrees.
6	Roll Angle: Roll angle indicator in degrees.
7	Boat Pitch Indicator: Visualizes the current pitch angle of the boat.
8	Boat Roll Indicator: Visualizes the current roll angle of the boat.
9	Pitch Offset: Indicates manual pitch offset when Auto Pitch Control is activated.
10	Port Interceptor Position: Indicates port Interceptor(s) extension in percent.
11	Starboard Interceptor Position: Indicates starboard Interceptor(s) extension in percent.
12	Port Interceptor Feedback: Visualizes the current port Interceptor extension.
13	Starboard Interceptor Feedback: Visualizes the current starboard Interceptor extension.
14	Boat Speed: Current speed over ground. If there is no GPS signal - speed numbers are not shown.
15	Error Information: Indicates a system error - check the System Information menu.
16	Interceptor Error: Indicates an Interceptor error - check the System Information menu.
17	STEER: Indicates that Steering mode is activated.

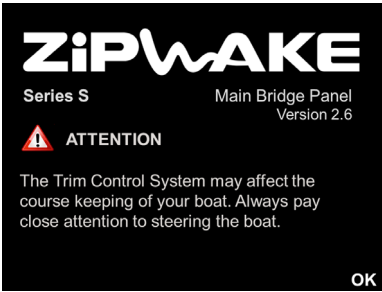
4.4 SPEED-PROGRESSIVE CONTROL WHEELS

The Pitch and Roll wheels are speed progressive. A single “tick” on the Pitch or Roll wheel will move the Interceptor blades one percent (1%). Turning a wheel faster equals more increments per “tick”. The number of increments when turning a wheel faster depends on the current speed of the boat. Low boat speed equals more increments and higher boat speed fewer increments, making manual pitch and roll control effective and safe.

5 INITIAL START

5.1 SETTING UP THE SYSTEM

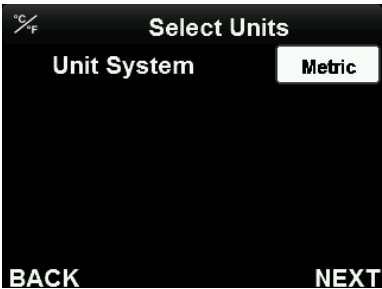
- 1. Press and hold the POWER button until the Zipwake logo appears on the display.
- 2. Read the ATTENTION text and press OK or wait (7 sec) for the next step.



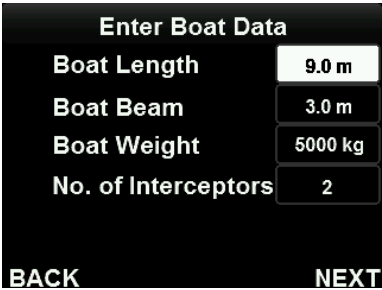
- 3. Select Language and press SELECT.



- 4. Select Units and press NEXT.
Metric: Kilograms, meters
Imperial: Pounds, feet



- 5. Enter Boat Length and press NEXT.
- 6. Enter Boat Beam and press NEXT.
- 7. Enter Boat Weight and press NEXT.
- 8. Enter the number of Interceptors installed and press NEXT.

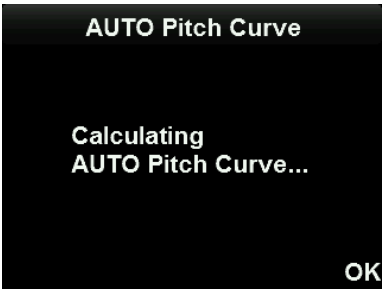


NOTE!

Only approximate boat data is required. Hull length, max chine beam, and half load displacement are good choices.

In cases with one Interceptor installed and centered on the transom's centerline, the number of Interceptors will be odd. A center-mounted Interceptor will only react to pitch motions. Refer to the Installation Guide for information about connecting a center-mounted Interceptor to the distribution unit.

9. The system now calculates the Auto Pitch Control Curve, which tells the system how much the Interceptors will be extended at each speed when Auto Pitch Control (chapter 7) is activated. Press OK or wait until the pop-up window closes.



NOTE!

You can always start from the beginning again by performing a Factory Reset (chapter 13.1).

 **IMPORTANT**

The system's automatic control functions need correct boat data to work properly. Make sure to enter the correct data for your boat.

5.2 CHECK GPS SIGNAL

 **IMPORTANT**

When starting the system for the first time, it may take several minutes for the GPS to acquire satellite reception.

1. Press the MENU button.
2. Select GPS Source and press SELECT.



3. GPS Source is set to Auto by default. The system will automatically select the GPS with the best reception and show it in the menu header.
4. GPS Status should be Good or Excellent. If not, see troubleshooting (chapter 15).

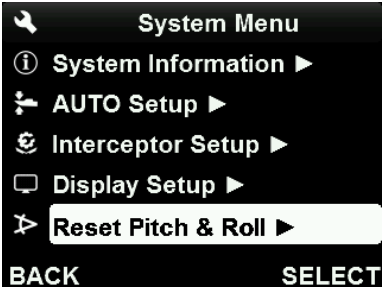


5.3 RESET THE PITCH AND ROLL ANGLES

 **IMPORTANT**

When starting the system for the first time, the pitch and roll angle indicators must be reset for the system's automatic control functions to work properly. When resetting these indicators, the boat must be level, on shore or in calm water at a standstill.

- 1. Press the MENU button.
- 2. Select Reset Pitch & Roll and press SELECT.



- 3. Select Reset Pitch and press RESET. Press YES in the pop-up window to confirm.
- 4. Select Reset Roll and press RESET. Press YES in the pop-up window to confirm.



NOTE!

Both the pitch and roll angles should now read close to 0.0°.

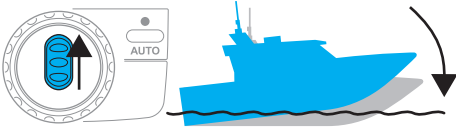
6 MANUAL ATTITUDE CONTROL

6.1 MANUAL PITCH AND ROLL

With the system in Manual mode, the boat's running attitude can be manually controlled using the control wheels. The Pitch wheel controls the trim or pitch angle, while the Roll wheel controls the list or roll angle.

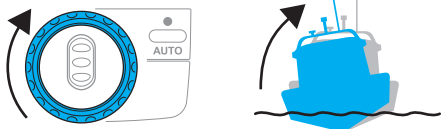
Bow down

Move the Pitch wheel forward



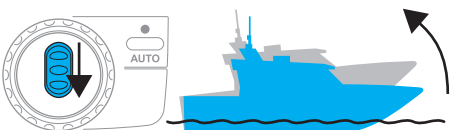
Correcting port list

Turn the Roll wheel clockwise



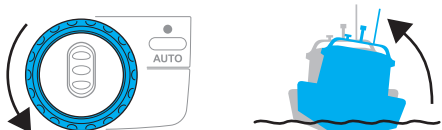
Bow up

Move the Pitch wheel rearward



Correcting starboard list

Turn the Roll wheel counter-clockwise



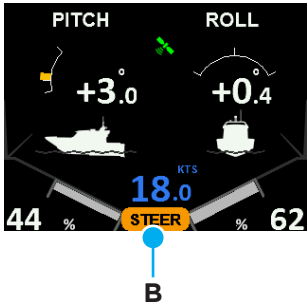
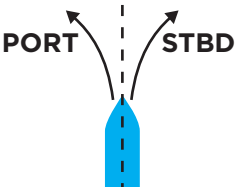
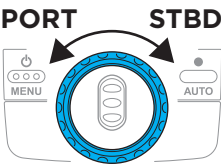
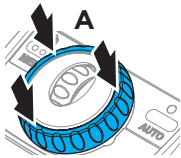
6.2 STEERING MODE

With Steering mode activated the Roll wheel acts as a steering wheel and controls the boat's heading or yaw angle.

**IMPORTANT**

Steering mode should only be used to make sensible course corrections when running in relatively calm waters. Steering mode remains off/turns off if Auto Roll Control (chapter 8) is activated.

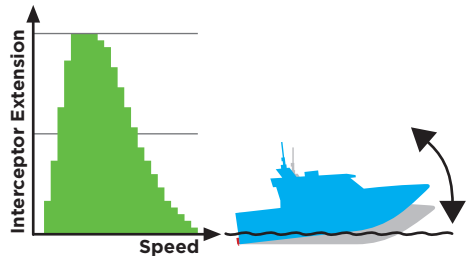
1. To activate Steering mode, press and hold the Roll wheel (A) until STEER (B) appears on the display.
2. Turn the Roll wheel clockwise to steer to starboard (STBD).
3. Turn the Roll wheel counter-clockwise to steer to port (PORT).
4. To turn off Steering mode, press and hold the Roll wheel (A) until STEER (B) disappears from the display.



7 AUTO PITCH CONTROL

7.1 AUTOMATIC PITCH

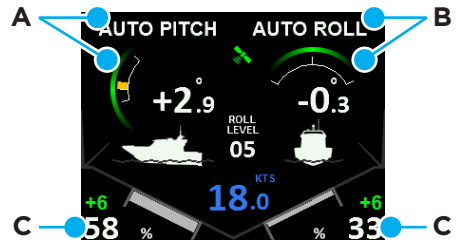
With Auto Pitch Control activated, the system will automatically adjust the running trim of your boat, minimizing wave resistance for best performance and comfort at all speeds. The Auto Pitch Control Curve tells the system how much the Interceptors should be extended at each speed, thereby adjusting the boat's pitch angle as a function of speed.



⚠ IMPORTANT The system's automatic control functions remain off/turn off when no GPS speed signal is available or in the event of other system failure(s). A flashing error message is then shown at the top of the main display.

If the system is in Manual mode:

1. To activate Auto Pitch & Roll Control, press and hold the AUTO button until AUTO PITCH (A), AUTO ROLL (B) and the green arcs appear on the display.
2. To have Auto Pitch Control active only, press the AUTO button. AUTO PITCH (A) and its green arc remain on the display, whereas AUTO (ROLL) and its green arc disappear.
3. Press the Auto Button to activate Auto Roll Control again.
4. Press and hold the Auto Button to return to Manual mode.



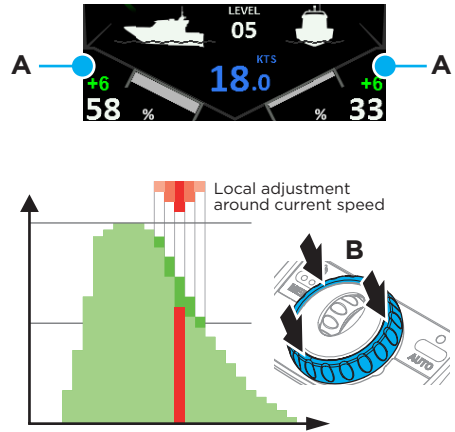
NOTE!

The extensions of the Interceptors (C) are shown in the lower corners of the display.

7.2 OFFSETTING THE AUTOMATIC PITCH

Even if Auto Pitch Control is activated, you can manually offset the automatic pitch setting to compensate for different sea and load conditions.

1. To trim the bow down, move the Pitch wheel forward to increase pitch offset (A).
To trim the bow up, move the Pitch wheel rearward to decrease pitch offset (A).
2. If the adjustment resulted in a better running trim, you can save it by pressing and holding the Roll wheel (B) until the pitch offset (A) disappears. The Auto Pitch Control Curve is adjusted locally according to the boat's current speed.



NOTE!

Saving a preferred trim setting in this manner, at a few different boat speeds, is a very quick way to build the optimum curve for your boat with its specific load. Details of the curve can be viewed and adjusted from the menu page (chapter 7.3).

7.3 EDIT THE AUTO PITCH CONTROL CURVE

The Auto Pitch Control Curve tells the system how much the Interceptors should be extended at each speed, thereby adjusting the boat's pitch angle as a function of speed. When starting the system the first time (chapter 5), a default curve is calculated based on your boat data (length, beam, weight). The Auto Pitch Control Curve can be viewed and fine-tuned from the menu page.

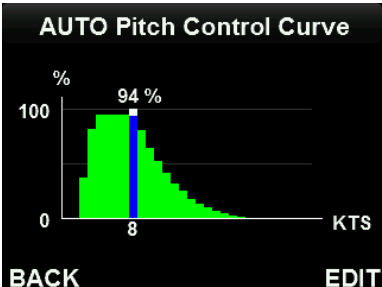
- 1. Press the MENU button.
- 2. Select AUTO Setup and press SELECT.



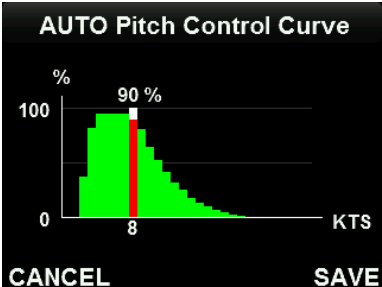
- 3. Select Auto Pitch Curve and press SELECT.



- 4. Press EDIT to enter edit mode.
- 5. Turn the Roll wheel to move to the desired speed.



- 6. A: Turn the Pitch wheel forward to increase Interceptor extension and lower the bow (decrease pitch angle).
or
B: Turn the Pitch wheel rearward to decrease Interceptor extension and raise the bow (increase pitch angle).
- 7. Repeat steps 5-6 if more than one setting is to be adjusted.
- 8. Press SAVE to update the curve.



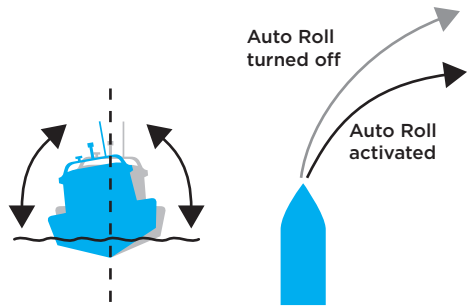
NOTE!

To reset the Auto Pitch Control Curve to the original (default) setting, perform a Factory Reset (chapter 13.1).

8 AUTO ROLL CONTROL

8.1 AUTOMATIC ROLL

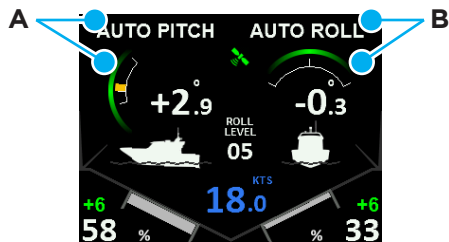
With Auto Roll Control activated, the system will automatically eliminate uncomfortable and dangerous boat roll. The system constantly works to keep the boat level or to make balanced (banked) turns. For boats that tend to heel too much inward in turns, the system will help the boat make sharper turns.



**IMPORTANT** Auto Roll Control is only active if the boat speed is above the Auto Threshold Speed (chapter 8.2). The system's automatic control functions remain off/turn off when no GPS speed signal is available.

If the system is in Manual mode:

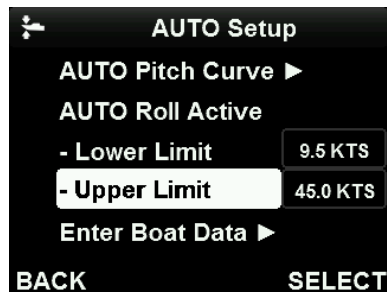
1. To activate Auto Pitch & Roll Control, press and hold the AUTO button until AUTO PITCH (A), AUTO ROLL (B) and the green arcs appear on the display.
2. To have Auto Pitch Control active only, press the AUTO button. AUTO PITCH (A) and its green arc remain on the display, whereas AUTO (ROLL) and its green arc disappear.
3. Press the Auto Button to activate Auto Roll Control again.
4. Press and hold the Auto Button to return to Manual mode.



8.2 AUTO ROLL SPEED RANGE

The Auto Roll Control is active within a speed range that is calculated based on the entered boat data. The lower and upper limits can be adjusted from their default values.

1. Press the MENU button.
2. Select AUTO Setup and press SELECT.
3. Select AUTO Roll Lower/Upper Limit and press SELECT to adjust the speed limit.



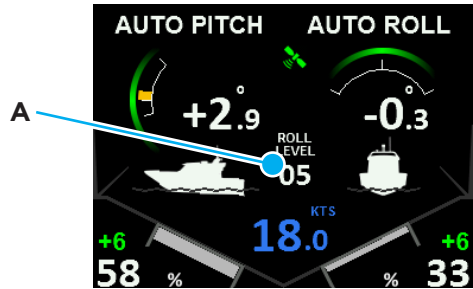
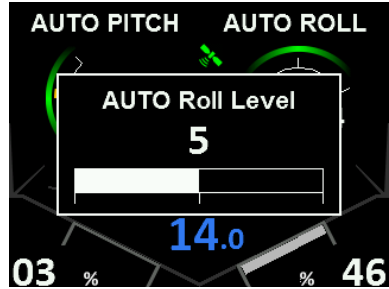
NOTE!

Once speed exceeds upper limit, AUTO roll remains inactive until speed drops below the upper limit by 6 knots while holding a steady heading.

8.3 AUTO ROLL LEVEL

With Auto Roll Control activated, its sensitivity can be adjusted from level 1-10. Increase or decrease the Roll Level depending on sea and load conditions.

1. Turn the Roll wheel clockwise to increase the Roll Level.
Turn the Roll wheel counter-clockwise to decrease the Roll Level.
2. The Roll Level indicator times out after a few seconds and the Roll Level is saved.



NOTE!

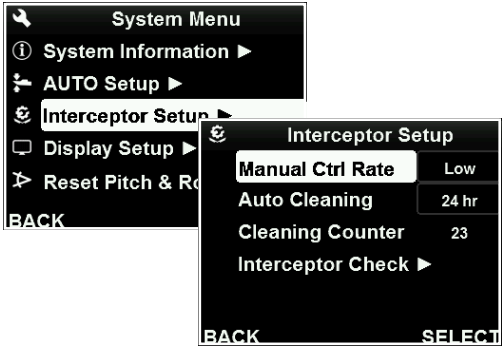
The current Roll Level (A) is indicated in the center of the display. Roll Level 5 equals normal (default) sensitivity. Try different Levels until you are satisfied. The selected Roll Level is saved until you select a new level.

9 INTERCEPTOR SETUP

9.1 MANUAL CONTROL RATE

The relationship between the turning rate of the control wheels and the interceptors' actuation speed can be adjusted from low to high in manual control mode. A high control rate provides fast actuation for more aggressive manual piloting, whereas a low setting is the default and sufficiently fast for most helmsmen.

- 1. Press the MENU button.
- 2. Select Interceptor Setup and press SELECT.
- 3. Select Manual Ctrl Rate and press SELECT to adjust the rate.

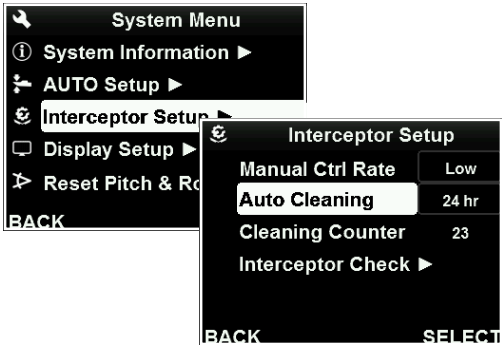


9.2 AUTO CLEANING

With AUTO cleaning enabled the system automatically carries out 3 consecutive cleaning cycles (blade moves in-out-in) with a periodicity selectable from 24 hours to 4 weeks. Moving the interceptor blade frequently in-and-out is an effective way to prevent fouling on the insides of the interceptors when boats stay in the water for long periods.

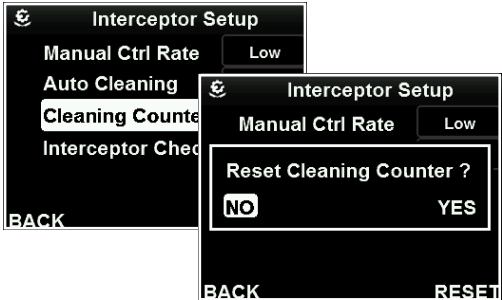
Refer to the Installation Guide's wiring diagram for information about connecting system power if AUTO cleaning is to be used.

- 1. Press the MENU button.
- 2. Select Interceptor Setup and press SELECT.
- 3. Select Auto Cleaning and press SELECT to adjust the desired cleaning cycle.



Reset the cleaning counter:

- 1. Press the MENU button.
- 2. Select Interceptor Setup and press SELECT.
- 3. Select Cleaning Counter and press RESET. Press YES in the pop-up window to confirm.



NOTE!

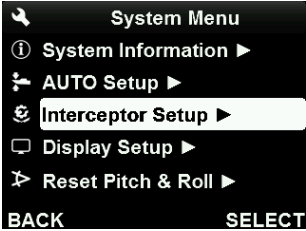
A cleaning cycle will only start if the boat has a confirmed speed below 2 knots. Disable AUTO cleaning or disconnect power to the system when the boat is hauled out of the water.

9.3 INTERCEPTOR CHECK

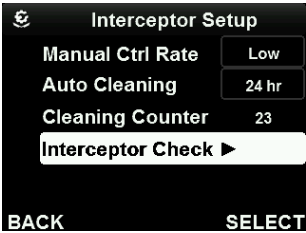
To monitor the status of each interceptor run an Interceptor Check at regular intervals. When performed, each interceptor makes 5 consecutive stroke cycles and its servo motor torque is measured and presented as mean and max. values for the blade moving out and in, respectively.

For easy grading of the torque levels, the numerical values are depicted in green-to-red color bar graphs, where green is acceptable whereas red is too high.

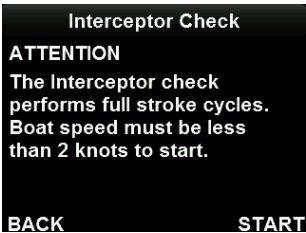
- 1. Press the MENU button.
- 2. Select Interceptor Setup and press SELECT.



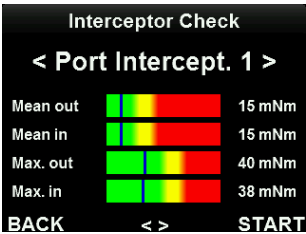
- 3. Select Interceptor Check and press SELECT.



- 4. Press START to perform the test cycle.



- 5. Turn the Roll or Pitch wheel to toggle different positioned interceptors, i.e. from Port Interceptor 1 to Starboard Interceptor 1.



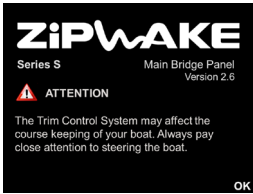
NOTE!

It is recommended that a first check is always made right after installing the interceptors, before launching the boat. If an interceptor then shows excessive servo motor torque, the prime suspect is the flatness of the transom behind the interceptor and/or excess antifouling between its blades. **All readings must be green!**

Corrective actions are always necessary in the event that too high torque levels are observed, be it related to transom flatness, excess antifouling, blade damage or marine growth.

10 TURN ON THE SYSTEM

- 1. Press and hold the POWER button until the Zipwake logo appears on the display.
- 2. Read the ATTENTION text and press OK or wait (7 sec) for the main display.



NOTE!

When the boat’s ignition switch is connected to the Key Sense input on the back of the control panel (chapter 3), the system is automatically turned on when the ignition switch (engine) is turned on.

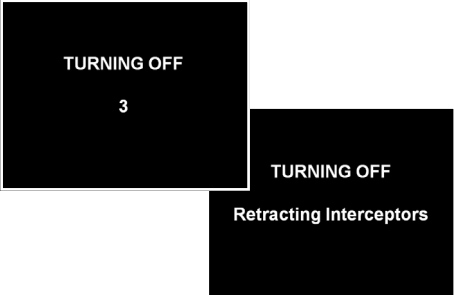
11 TURN OFF THE SYSTEM

NOTE!

With AUTO cleaning enabled (chapter 9.2), the system will automatically wake up and periodically carry out 3 consecutive cleaning cycles when the system is turned off.

11.1 TURN OFF - SINGLE CONTROL PANEL

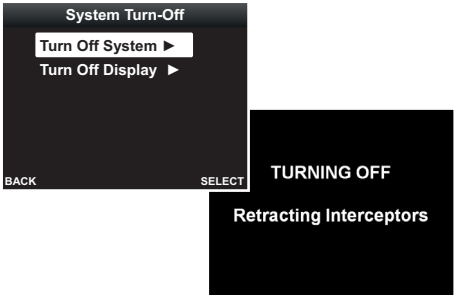
- 1. To turn off the system press and hold the POWER button.
- 2. A countdown appears on the display.
- 3. Keep the POWER button pressed until the countdown reaches 1 or the system will revert to the main display.
- 4. The system is turned off and the Interceptors are automatically retracted.



11.2 TURN OFF - MULTIPLE CONTROL PANELS

If more than one control panel is installed, choose to either turn off the system or only turn off the current display.

- 1. Press and hold the POWER button until the System Turn-Off menu appears.
- 2. A: Select Turn Off Display and press SELECT to turn off the display. Press the POWER button to reactivate the display or
B: Select Turn Off System and press SELECT to turn off the system. The system is turned off and the Interceptors are automatically retracted.



11.3 IGNITION SWITCH INSTALLATION

When the boat’s ignition switch is connected to the Key Sense input on the back of the control panel (chapter 3), the system is automatically turned off when the ignition switch (engine) is turned off.

12 DISPLAY SETTINGS

- 1. Press the MENU button.
- 2. Select Display Setup and press SELECT.

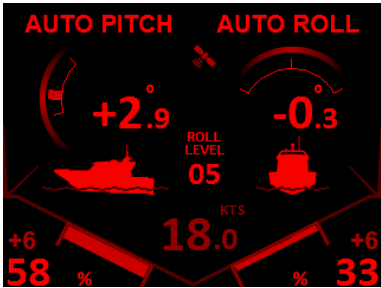


- 3. Select Brightness and press SELECT to adjust the display brightness 1-100%. The menu choice is not available if Display mode is set to Auto.
- 4. Select Display mode and set it to Auto (default), Day or Night.



NOTE!

With the Display mode set to Auto, the display automatically adjusts the brightness depending on the ambient light and switches between Day mode (normal screen) and Night mode (red screen).



13 ADVANCED SETUP

13.1 FACTORY RESET

To reset the settings and the Auto Pitch Control Curve to default, perform a Factory Reset.

 **IMPORTANT**

A Factory Reset resets all values and settings in the system. You can backup (chapter 13.2) and reinstall either the settings or the Auto Pitch Control Curve after a Factory Reset has been performed.

1. Press the MENU button.
2. Select Advanced Setup and press SELECT.
3. Select Factory Reset and press SELECT.
4. Press OK in the pop-up window to confirm.
5. The system will now reset all the settings and turn off.
6. Start the system and perform a new setup (chapter 5).



13.2 IMPORT/EXPORT DATA

Backup the Auto Pitch Control Curve and settings to a USB memory stick for re-installation and/or to transfer settings between control panels/boats.

 **IMPORTANT**

A USB memory stick with FAT32 formatting must be connected to the system when importing/exporting data.

1. Press the MENU button.
2. Select Advanced Setup and press SELECT.



3. Remove the USB (A) connector cover on the back of the control panel and connect a USB memory stick to the DEVICE connector before export/import.



4. Select Pitch Curve Imp/Exp or System Config Imp/Exp, press SELECT and follow the steps provided.

5. Remember to remove the USB memory stick and put the connector cover back in place when done.



14 NMEA 2000 SYSTEM INTEGRATION

When connected to an NMEA 2000 network, the system communicates with other compatible devices connected to the network to enable integration of systems. Refer to the Installation Guide's wiring diagram for information about connecting to an NMEA 2000 network.

The Zipwake system transmits data to allow monitoring on NMEA 2000 compliant devices, such as multi-functional displays and plotters. It is also possible to control Zipwake features and settings from external devices using proprietary data in the NMEA 2000 protocol. Manual control of interceptor positions is not possible from external devices.

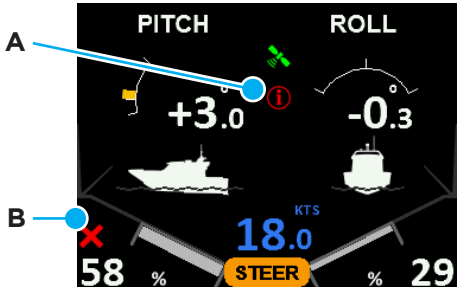


Refer to the Programming Manual (available on request; visit www.zipwake.com for more information) for detailed information about the available transmitted and received signals as well as detailed information required for external control application development.

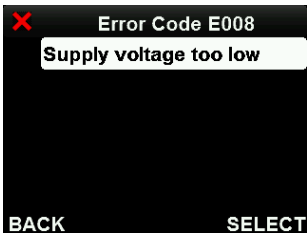
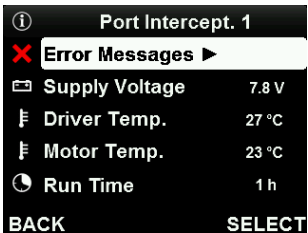
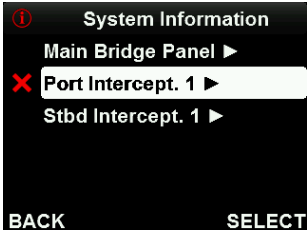
15 TROUBLESHOOTING

15.1 SYSTEM ERROR INFORMATION

A flashing error symbol (A) indicates system errors that need attention.
An Interceptor error symbol (B) indicates an error with one or more Interceptors.
For a complete list of error descriptions and corrective actions see chapter 15.3.

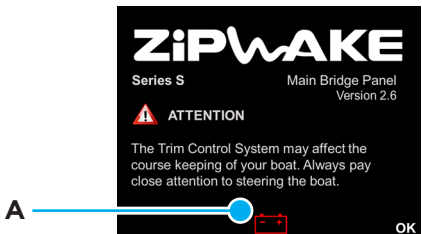


1. Press the MENU button.
2. Select System Information and press SELECT.
3. Select a row with an error code and press SELECT.
4. Select the error code and press SELECT.
5. Read the error message(s) and go to chapter 15.3 for corrective actions.



15.2 BATTERY WARNING

Check the battery condition if the battery error symbol (A) is shown when the system is turned on.



15.3 ERROR CORRECTIVE ACTIONS

Check the corrective actions below to resolve problems. Visit www.zipwake.com for the latest product information, software upgrades and error corrective actions. If the problem remains, contact your retailer for support and/or replacement units.

Control Panel Error Messages

Supply voltage too low

- Check battery supply voltage (>12V).
- Check the power cable connection to the battery.

Supply voltage too high

- Check the distribution unit power cable.
- Check battery supply voltage (12-32V).

Button/wheel failure

- Check if any buttons or wheels are stuck.
- Use fresh water to spray and remove any dirt on the control panel front.

Acc/gyro error

- Turn off the system for 10 minutes, then restart.

Panel temperature too high

- Check if the panel is mounted close to any heat source.
- Try mounting the panel in another (cooler) location.

Program error

- Restart the system.
- Visit www.zipwake.com for upgrades resolving the issue.

Interceptor not connected

- Check the servo cables for damage.
- Clean and reattach the connectors on the distribution unit.

Communication error

- Check the system cables for damage.
- Clean and reattach connectors on the distribution unit and control panels.

No GPS signal

- Check GPS source and GPS status on the Select GPS Source menu page (normally set to Auto).
- If an external GPS or NMEA 2000 GPS is installed, check the cables for damage.
- Check that the NMEA 2000 GPS source is turned on.
- Clean and reattach the control panel connectors.

Interceptor/Servo Unit Error Messages

Supply voltage too low

- Check battery supply voltage (>12V).
- Check the power cable connection to the battery.
- Check the distribution unit power cable.

Supply voltage too high

- Check battery supply voltage (12-32V).

Interceptor stroke too short

- Restart the system.
- Remove the Interceptor front and check that the blades are moving correctly. Remove any growth, dirt or paint.
- Reinstall the front, run the Interceptor and check that the blades are moving correctly.

Interceptor stroke too long

- Restart the system.
- Remove the Interceptor front and check that the blades are moving correctly. Remove any growth, dirt or paint.
- Reinstall the front, run the Interceptor and check that the blades are moving correctly.

Electronics failure

- Restart the system.
- Visit www.zipwake.com for upgrades resolving the issue.

Overload, interceptor stuck

- Check for excessive growth, dirt or paint on the Interceptor and between the blades.
- Remove the Interceptor front and check that the blades are moving correctly.
- Reinstall the front, run the Interceptor and check that the blades are moving correctly.

Motor drive temperature high

- Turn off the system for 10 minutes, then restart.

Motor temperature high

- Turn off the system for 10 minutes, then restart.

Motor HALL sensor failure

- Turn off the system for 10 minutes, then restart.

Motor drive failure

- Turn off the system for 10 minutes, then restart.

15.4 OTHER ERRORS

The system's automatic control functions remain off/turn off or turn on/off intermittently (can happen if there is a system error or if there is no GPS speed signal).

- Check error message flashing when turning on Auto Pitch Control.
- Check System Information Menu and error messages above to resolve the problem.

Auto Pitch Control turns on/off intermittently

(can happen if the GPS has a weak signal or poor satellite coverage).

- Check GPS status in the Select GPS Source Menu. Set GPS Source to Auto.
- Connect an NMEA 2000 GPS source if available. Refer to the Installation Guide.
- Install Zipwake external GPS if the control panel is mounted under a shielding top (roof). Refer to the Installation Guide.

The boat lists to port when the roll wheel is turned to starboard (clockwise) at speed

- Check how the Interceptors are connected to the distribution unit. Refer to the Installation Guide for correct connection.

16 MAINTENANCE

 **WARNING** Watch out for sharp edges when close to the Interceptors.

 **IMPORTANT** Always use the controls to move the interceptor blades. Never try to force the Interceptor blades by hand.

16.1 LAUNCH

Paint the Interceptors with anti-fouling paint before launching your boat. If possible use spray paint (recommended). When the paint is dry, remove excess paint between the Interceptor blades. Before launching the boat, move the Interceptor blades full strokes using the controls to ensure that they move freely and correctly. Refer to the Installation Guide for more information.

Verify acceptable servo torque levels by running an Interceptor Check (chapter 9.3).

16.2 HAUL-OUT

 **IMPORTANT** When your boat is hauled out of the water, do not place any supporting blocks pushing against the Interceptors or blocking the Interceptor blades.

After your boat has been hauled out of the water, use a pressure washer to remove any growth or dirt on the Interceptors. Fully extend the Interceptor blades using the controls and pressure wash them. Check the blades for damage. When washing is completed, retract the Interceptor blades by turning off the system. Check that the cable covers are in place and not damaged. When the boat is hauled out after being in the water for an extended time, we recommend temporarily removing the Interceptor fronts and pressure washing the inside of the Interceptors thoroughly.

 **IMPORTANT** When cleaning the control panel:

- Only use fresh water and wipe with a soft towel when cleaning the front of the control panel(s).
- Do not wipe the display/screen with a dry cloth as this could scratch the screen coating.
- Do not use abrasives, or acid-/ammonia-based products.
- Do not use a pressure washer.

17 SYSTEM UPGRADE

The Dynamic Trim Control System software can be upgraded.
Visit www.zipwake.com to check for new software releases.

⚠ IMPORTANT The software upgrade file must be saved to the root of a USB memory stick with FAT32 formatting when upgrading the system.

1. Download a software upgrade file from www.zipwake.com.
2. Copy the software upgrade file to the root of the USB memory stick.
3. Remove the USB (A) connector cover on the back of the control panel and connect the USB memory stick to the DEVICE connector.
4. Restart the system and follow the instructions on the display.
5. Remember to remove the USB memory stick and put the connector cover back in place when done.



NOTE!

Your System Configuration (user settings) and Auto Pitch Control Curve will not be erased when you upgrade to another software version. You can also downgrade to a previous software release.

Visit www.zipwake.com for additional information such as:

- Operator's Manual and Installation Guide in different languages
- Product specifications, including a list of accessories and spare parts
- Application examples and Interceptor mounting options
- Drawings and 3D models of system components
- Software upgrades for your Dynamic Trim Control System
- Programming Manual for external control application development

ZIPWAKE

CHOOSE COMFORT. ENJOY PERFORMANCE.