# SC 110 Autopilot
# Installation and Operations Manual

531760-4_A


HUMMINBIRD®

Accessory Manual

# Thank You

Thank you for choosing Humminbird®, the #1 name in Fishfinders. Humminbird® has built its reputation by designing and manufacturing top-quality, thoroughly reliable marine equipment. Your Humminbird® accessory is designed for trouble-free use in even the harshest marine environment. In the unlikely event that your Humminbird® accessory does require repairs, we offer an exclusive Service Policy - free of charge during the first year after purchase, and available at a reasonable rate after the one-year period. For complete details, see the separate warranty card included with your accessory. We encourage you to read this operations manual carefully in order to get full benefit from all the features and applications of your Humminbird® product.

Contact our Customer Resource Center at **1-800-633-1468** or visit our Web site at **humminbird.com**.

**WARNING!**
**It is the operator's responsibility to make prudent decisions regarding personal safety and the operation of the vessel. Do NOT leave the autopilot unattended while it is steering the vessel. Watch for obstacles and potential hazards at all times. Be prepared to respond to changing conditions and take manual control of the vessel as required.**

**WARNING!**
**The autopilot system should be installed by a Certified Marine Electronics Technician (CMET) or an authorized Marine Electronics Installer (MEI). See NMEA.org for details. Incorrect installation affects the system's performance, which affects the safety of the vessel and its passengers. If you have questions about the installation, please contact our Customer Resource Center.**

**WARNING!**
**This device should not be used as a navigational aid to prevent collision, grounding, boat damage, or personal injury. When the boat is moving, water depth may change too quickly to allow time for you to react. Always operate the boat at very slow speeds if you suspect shallow water or submerged objects.**

**WARNING!**
**Do NOT use the autopilot where there may be shallow water, obstacles, or when manual navigation is required, especially in the following situations:**

- while navigating or maneuvering in shallow waters or dangerous seabeds,
- while entering or exiting harbor, mooring, or setting sail,
- while traveling at high speed,
- in heavy traffic areas, near breakwaters, canals,
- or while encountering any potential obstacles.

**WARNING!**
**While you are learning to use the autopilot, it is important to practice in calm, open sea, far from shallow water, vessels, or other obstacles.**

**WARNING!**
**When you first power up the autopilot, confirm that the bearing of the compass on the screen matches the vessel's analog compass reading. If there is a significant difference between the readings, contact an authorized technician (CMET or MEI), or contact the Humminbird® Customer Resource Center for assistance.**

**WARNING!**
**Disassembly and repair of this electronic unit should only be performed by Humminbird® authorized service personnel. Any modification of the serial number or attempt to repair the original equipment or accessories by unauthorized individuals will void the warranty.**

**NOTE:**
**We recommend that you read this manual completely so you understand the installation and operation requirements before you proceed. Keep this manual with you on the vessel for your reference.**

**NOTE:**
Product specifications, features, and printed materials are subject to change without notice. Humminbird® is not responsible for any direct or indirect damage that may occur to people, animals, or things due to the use of its products.

**NOTE:**
Some of the features described in this manual require a separate purchase. Every effort has been made to clearly identify those features. Please read the manual carefully in order to understand the full capabilities of your model.

**NOTE:**
To purchase accessories and additional equipment for your control head, visit our Web site at **humminbird.com** or contact our Customer Resource Center at **1-800-633-1468**.

**NOTE:**
The procedures and functions described in this manual are subject to change without notice. This manual was written in English and may have been translated to another language. Humminbird® is not responsible for incorrect translations or discrepancies between documents.

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# About the SC 110 Autopilot

The SC 110 autopilot uses multisensor technology and operation modes to provide steering control for any type of vessel. The control head provides graphic and numeric readouts of the course, heading, and rudder movement. If a wind sensor is installed, the apparent wind will be displayed in Wind mode.

There are many available operation modes which allow you to bow target, choose turn patterns, tack and gybe, or navigate a route from an optional-purchase Humminbird® Multi-Function Display. The autopilot system requires specific optional-purchase accessories to enable each of the operation modes. Contact our Customer Resource Center for more information.

We encourage you to read this manual carefully so that you may understand the full capabilities of the SC 110 autopilot.

## Installation

The SC 110 Autopilot includes hardware and a template to mount the control head in the dashboard. You may also purchase gimbal mount hardware and extension cables for your installation. Contact our Customer Resource Center for details.

The SC 110 Autopilot control head connects to the SCP 110 Course Computer (CPU) so that it receives input from the Fluxgate Compass, Gyronav Rate Sensor, GPS receiver, and all connected autopilot equipment.

**WARNING!**
**The CPU and all related equipment should be installed by a Certified Marine Electronics Technician (CMET) or an authorized Marine Electronics Installer (MEI). See NMEA.org for details.**

# 1. Connecting the Control Head to the CPU

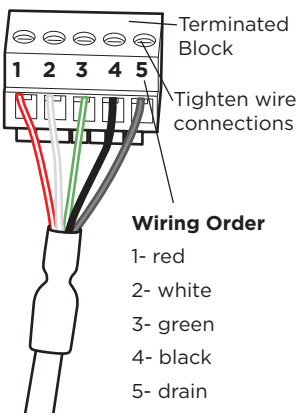
1. Turn off the power to the CPU.
2. Test route the power cable from the CPU to the autopilot control head.
3. Remove the CPU cover and insert the cable through the CPU strain relief for the correct terminal, and proceed as follows:
    - **Unit 1 (TB7):** Remove the terminated block from the TB7 Control Unit 1 connector. Insert the bare wires of the Power/CPU cable into the terminated block connector as shown in ***Inserting the Wires into the Terminated Block***.
    - **Unit 2 (TB8):** If you are connecting a second autopilot (optional-purchase Remote SC 110 Control Head), remove the terminated block from the TB8 Control Unit 2 connector. Insert the bare wires of the Power/CPU cable into the terminated block connector as shown in ***Inserting the Wires into the Terminated Block***.

4. Tighten the wire connections and slide the terminated block back into the connector.

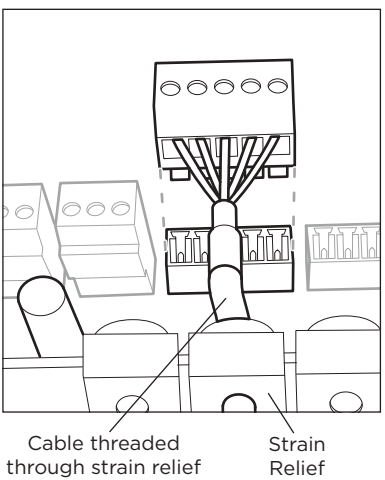
5. Replace the cover on the CPU.

6. Route the power cable to the control head. You will connect the power cable to the control head in a later step.

**Inserting the Wires into the Terminated block**




**Sliding the Terminated Block into the CPU**




## 2. Connecting the TC 110 Joystick

(optional-purchase required)

1. Follow the installation instructions included with the joystick.

2. Route the accessory cable to the control head. You will connect the accessory cable to the control head in a later step.

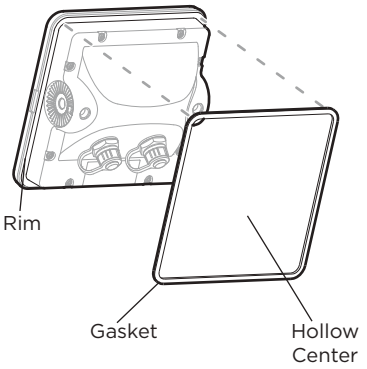
# 3. Dashboard Mount

Your SC 110 autopilot includes hardware to mount the control head in the dashboard.

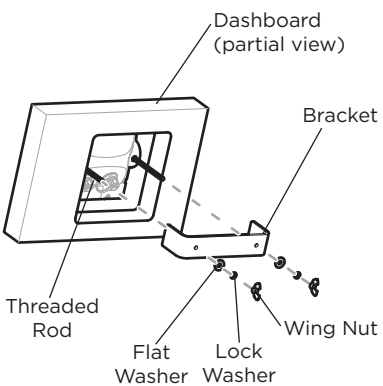
**NOTE:**
**You may also purchase Gimbal mount hardware and extension cables for your installation. Contact the Humminbird® Customer Resource Center for more information.**

1. Choose a suitable, flat area of the dashboard to mount the control head, noting the following requirements:
   - Control head depth: 3 inches (7.6 cm).
   - The area should be protected from waves, shock, and water.
   - The area should be easily accessible for all cables to reach the control head.
2. Tape the paper In-Dash Mounting template to the mounting location you choose. Make sure the template is level.
3. At a location inside the dotted line on the template, drill a hole large enough to insert the blade of a reciprocating saw. Carefully begin cutting toward the dotted line, and then follow the dotted line around the template. Remove the template when finished.

**Attaching the Foam Pad**




**Attaching the Bracket**




4. If the gasket has a foam center, remove the center.

5. Peel off the liner of the adhesive side of the gasket. Place the gasket's adhesive side on the rim on the back of the control head.

6. Insert and tighten the two threaded rods into the two threaded inserts located on the back of the control head (see ***Attaching the Bracket***).

7. Peel off the second liner from the gasket, and insert the control head through the mounting hole from the front side of the dashboard.

8. Slide the bracket onto the two threaded rods.

9. Place a flat washer onto each threaded rod, and then secure the bracket by placing a lock washer and wing nut onto each threaded rod. Hand tighten only.

   **Do not overtighten the wing nuts.**

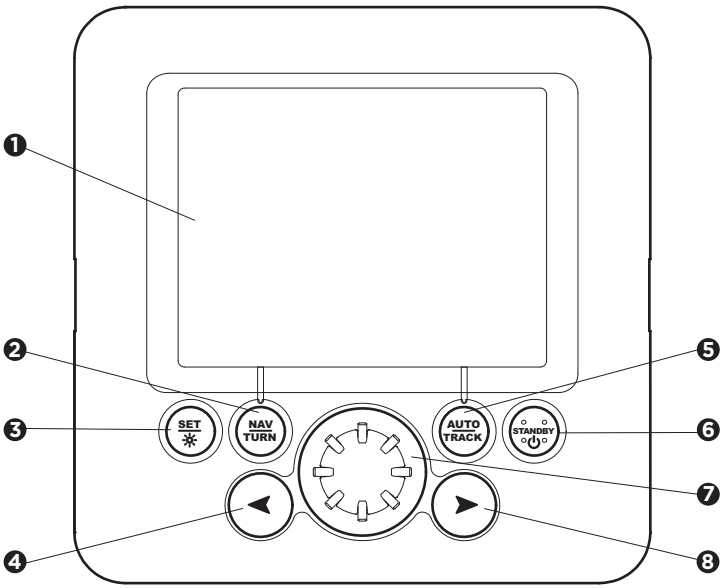
**10.** On the back of the autopilot control head, insert the power cable into the POWER/CPU port, and if purchased, insert the TC 110 Joystick cable to the ACCESSORY port.

**NOTE:**
**The connectors are keyed to prevent incorrect installation, so be careful not to force the connectors into the wrong ports.**

**11.** Hand-tighten the screw nuts on each cable connector to secure. Proceed to ***Control Head Configuration*** to set up the Autopilot for initial use.

## Control Head

The keys on the autopilot control head allow you to access various operation modes and menu settings.




1. Screen
2. NAV/TURN key
3. SET/BRIGHT key
4. LEFT ARROW key
5. AUTO/TRACK key
6. STANDBY/POWER key
7. Rotary Knob
8. RIGHT ARROW key

# Power On/Off

Use the following instructions to power on/off the autopilot control head.


## Power On

1. Press the STANDBY/POWER key.
2. The splash screen will display while the autopilot transitions to Standby mode. The splash screen displays the current control head and CPU software versions.

## Power Off

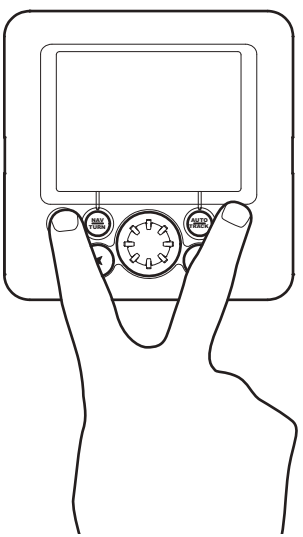
Press and hold the STANDBY/POWER key until the control head powers off.

## **Control Head Configuration** (initial setup only)

The control head configuration is required for initial operation of the autopilot. After these menus have been set, Installation mode should only be used periodically.

**WARNING!**
**The menus in this section affect the autopilot operation, which affects the safety of the vessel and its passengers. If you do not understand a menu function, do NOT change the setting. Contact the Humminbird® Customer Resource Center for assistance.**

# 1. Start Installation Mode



To start Installation Mode, use the following steps:

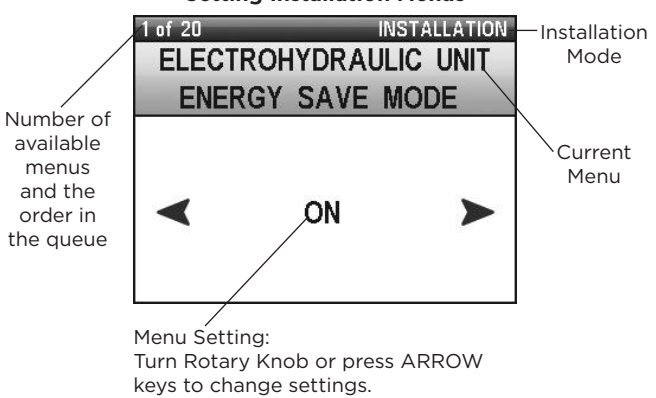
1. Power on the control head.
2. Press and hold the SET/BRIGHT key and the STANDBY/POWER key at the same time.
3. INSTALLATION will be displayed at the top right corner of the screen.

# 2. Input Installation Settings

There are several installation settings available for the autopilot, and the default settings are suitable for many vessels. Each menu setting is important and must be accurate for maximum autopilot performance.

- **Connected Equipment:** It is important to enable devices that are connected to the autopilot control head and CPU, such as the compass, rudder system, and attached accessories.
- **Compass Models:** For more information about how to enable various compass types, see ***Section 4, Compass Settings***.
- **Alarms:** Set the Rudder Alarm or the Off Course Time Out in the Installation Mode.
- **Expansion Cards:** When an expansion card is installed in the CPU, the corresponding settings will be added to the Installation Mode menu, and you must enable additional attached equipment (such as a GyroCompass).

**Setting Installation Menus**



**WARNING!**
**The menus in this section affect the autopilot operation, which affects the safety of the vessel and its passengers. If you do not understand a menu function, do NOT change the setting. Contact the Humminbird® Customer Resource Center for assistance.**

**To scroll through menu options:** Press the SET/BRIGHT key.

**To change menu settings:** Press the RIGHT ARROW key or LEFT ARROW key to adjust the first menu option. You can also use the Rotary Knob to change the settings. The setting will be saved automatically.

**To return to the first Installation Mode Menu:** Press the SET/BRIGHT key and the STANDBY/POWER key.

**To exit Installation Mode:** Press the STANDBY/POWER key.

| Menu | Description | Settings |
|---|---|---|
| **Language** | Sets the language for the display. | **English:** English<br>**Italiano:** Italian<br>**Francais:** French<br>**Español:** Spanish<br>**Deutsch:** German<br>Default: English |
| **Units – Speed** | Sets the units of measure for speed readouts. | **kts:** knots<br>**mph:** miles per hour<br>**km/h:** kilometers per hour<br>Default: kts |
| **Units – Distance** | Sets the units of measure for distance readouts. | **nm:** nautical miles<br>**sm:** statute miles<br>**km:** kilometers<br>Default: nm |
| **Magnetic Compass Signal Strength** | Reports the strength of signal reception. | N/A: system readout |
| **Rudder Limit** | Sets the maximum angle (port and starboard) that the autopilot can move the rudder. | **10° to 35°**<br>Default: 25° |

| Menu | Description | Settings |
|---|---|---|
| **Feedback Slack** | Sets the allowable tolerance or dead band before the system will respond to changes in feedback. Reduces servo jitter or chatter. | **.5° to 3.0°**<br>Where .5 = tighter response to rudder feedback, and 3.0 = looser response to rudder feedback.<br><br>Default: .7° |
| **Feedback 0 Position** | Adjusts the zero (0) position of the rudder when there is a difference between the actual rudder position and the readout on the display. Make sure the rudder is in the center position before you change this setting. | **-7.5° to 7.5°**<br>(where -7.5 = Port and +7.5 = Starboard)<br><br>Default: 0° |
| **Feedback Type** | Sets the rudder feedback type connected to the autopilot. The Gyronav sensor must be connected and enabled (see ***Gyronav***). | **Disabled:** Off<br>**FB30**<br>**LF n:** Linear Normal<br>**LF r:** Linear Reverse<br>**POT n:** Potentiometer Normal<br>**POT r:** Potentiometer Reverse<br>**LIN:** Linear<br>Default: FB30 |
| **Power Steering Type** | Sets the type of the power steering actuator installed on the vessel. Pump should be matched to steering cylinder size. Rev 2 and Rev 3 settings attenuate controller voltage output. | **SOL:** Solenoids (valve actuators)<br>**REV 1:** Pump is well matched to steering cylinder (100% controller voltage output)<br>**REV 2:** Oversized pump (80% controller voltage output)<br>**REV 3:** Grossly oversized pump (60% controller voltage output)<br>**RELAYS:** Signal level outputs for interfacing with vessel steering systems. |

| Menu | Description | Settings |
|---|---|---|
| **Energy Save** | Turns the energy save mode on or off. Enable this setting to prevent the steering system from running when it is not required. This feature is useful on sailboats only when a Solenoid Power Pack is installed. | **Disabled:** Off<br>**Enabled:** On<br>Default: Disabled |
| **Rudder Alarm** | Sets whether the rudder alarm will sound due to an error in the rudder movement. | **Enabled:** On<br>**Disabled:** Off<br>**Standby:** This setting is not recommended for all vessels. If there is a rudder movement error, the autopilot will disengage and enter Standby mode automatically. **Be prepared to manually control the vessel.**<br>Default: Enabled |
| **Magnetic Compass Type** | Sets the compass model connected to the autopilot CPU. | **FXC110:** Humminbird® FXC110<br>**HRS1:** Humminbird® HRS1<br><br>Default: FXC110 |
| **Compass Alignment** | Adjusts the electronic compass reading so that the compass doesn't have to be moved to receive accurate readings. | **-30° to 30°**<br>Default: 0°<br><br>NOTE: Adjust this setting after the Compass Compensation procedure has been performed. |
| **Compass Damping** | Adjusts the filter setting to prevent sensitivity to intermittent signals. Controls oscillation of the compass reading. | **0 to 9**<br>Default: 6 |

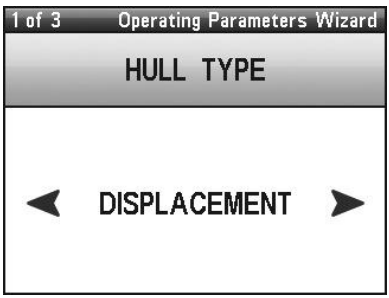
| Menu | Description | Settings |
|---|---|---|
| **NAV2 Function** | Sets the function of the equipment connected to NAV2 in the CPU. | **Disabled:** Off<br>**Nav2:** Chartplotter (#2)<br>**Wind:** Wind Sensor<br>Default: Wind |
| **Off Course Timeout** | Sets the amount of time (in seconds) before the off course alarm will begin to sound or display on the screen when the vessel has moved more than 20° off course. | **Disabled:** Off<br>**10s to 120s**<br>Default: 30s (30 seconds) |
| **Info Display** | Sets the GPS readout displayed on the right side of the screen. | **SOG:** Speed Over Ground<br>**COG:** Course Over Ground |
| **Tiller Control Function** | Auto mode only. Adjusts the rudder setting from the tiller control function. | **Standard:** Temporary Dodge<br>**1° to 30°** (Adjusts the heading by the set amount)<br><br>Default: Standard |
| **Minimum Rudder** | Sets the value (in degrees) that the autopilot will add to any given rudder command. This feature can make the vessel more responsive to autopilot commands, especially when it does not respond to small deflections of the rudder because of its mid-ship position (e.g. waterjet propulsions). | **0.0° to 3.0°**<br>Default: 0.0° |

| Menu | Description | Settings |
|---|---|---|
| **Multisensor** | Enables or Disables the Multisensor mode (Fluxgate compass, GPS, and Gyronav). Gyronav sensor must also be connected and enabled. | **Enabled:** On<br>**Disabled:** Off<br>Default: Disabled |
| **Gyronav** | Enables or Disables the Gyronav connected to the CPU. The Gyronav setting must be used with the Fluxgate Compass (FXC 110). | **Enabled:** On<br>**Disabled:** Off<br>Default: Enabled |

# 3. Operating Parameters Wizard

The Operating Parameters Wizard will automatically calculate the measurements for the Yaw, Rudder, Counter Rudder, and Turn Rate for the vessel. These settings may also be adjusted manually (see ***Manage Control Head Settings: Change the Autopilot Settings***).

**Operating Parameters Wizard**




1. From Installation mode (see ***Control Head Configuration: Start Installation Mode***), press and hold the NAV/TURN key. Operating Parameters Wizard will be displayed in the top right corner of the screen.

   **To scroll through menu options:** Press the Set/BRIGHT key.

   **To change menu settings:** Press the RIGHT ARROW key or LEFT ARROW key to adjust the first menu option. You can also use the Rotary Knob to adjust the settings. The setting will be saved automatically.

   **To exit Operating Parameters Wizard:** Press the STANDBY/POWER key.

2. Enter the following information into the Operating Parameters Wizard:

   - **HULL TYPE**: Set the vessel's hull type.

     **DISPLACEMENT** (power boat, displacement hull)

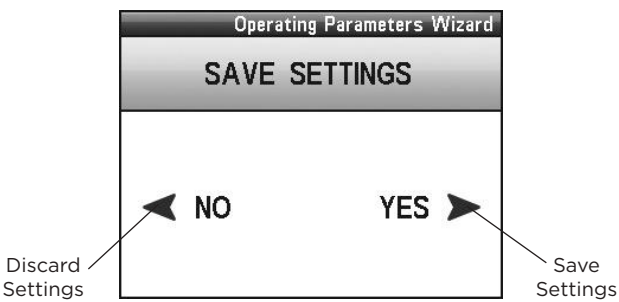
     **PLANING** (power boat, planing hull)

     **WATERJET** (waterjet propulsion system)

     **SAILBOAT** (sail boat)
   - **LENGTH**: Set the vessel's length.
   - **MAXIMUM SPEED:** Set the vessel's maximum speed.

3. Follow the menu prompts and adjust the settings to match your vessel information until you reach the final screen, "SAVE SETTINGS?" Press the RIGHT ARROW key to save settings, or press the LEFT ARROW key to discard settings.

**Saving or Discarding Settings**




4. After the settings are saved, the yaw, rudder, counter rudder, and turn rate will be set automatically.

5. To exit, press the STANDBY/POWER key.

# 4. Compass Settings

The autopilot system is compatible with a variety of compass models. See the CPU installation guide for details. To enable each compass in the Installation mode menu, use the guidelines in the table below.

One heading sensor can be used at a time. To switch between the magnetic compass and the GyroCompass, see ***Manage Control Head Settings: Switch the Active Compass***.

| Compass Model | Confirm Installation Mode Settings |
|---|---|
| **Humminbird® FXC 110** and **Gyronav® rate sensor** | **Magnetic Compass Type** = FXC110<br>**Gyronav** = Enabled |
| **Humminbird® HRS1** | **Magnetic Compass Type** = HRS1 |
| **GyroCompass** (optional-purchase expansion card required) | **Expansion Card – GyroCompass Type** = enter the appropriate value (see GyroCompass installation guide) |

**NOTE:**
There are additional steps to configure the compass with the Autopilot control head. See ***Test the Autopilot and Finalize Installation*** for details.

# Test the Autopilot and Finalize Installation

After installation and configuration are complete, it is important to test the autopilot for accuracy and performance. You will also compensate the compass and confirm the compass settings. **It is important to complete all the steps in this section.**

**WARNING!**
**If the equipment is not functioning properly, or the display readout is not correct, contact an authorized technician (CMET or MEI), or contact our Customer Resource Center for assistance.**

## Test 1: Confirm Autopilot Equipment & Readouts

The first test should be performed while the vessel is anchored in a safe harbor or at dock.

1. Power on the control head.
2. Press the POWER/STANDBY key to begin Standby Mode. Confirm the following sensor settings:

### Rudder Feedback Unit

1. Turn the wheel of the rudder manually.
2. Confirm that the rudder angle matches the angle displayed on the screen.

   If the angle displayed on the screen is the opposite angle of the actual rudder setting, see the installation guides for the rudder feedback sensor and CPU to invert the wire connections for the feedback connector (pin 3 and 4).

### TC 110 Joystick (optional-purchase)

1. Adjust the rudder angle with the remote control.
2. Confirm that the rudder angle matches the angle displayed on the screen. If the angle displayed on

the screen is the opposite angle of the actual rudder setting, see the installation guides for the TC 110 Joystick, the Rudder Feedback, and the CPU to invert the wire connections.

## Fluxgate Compass

1. Compare the compass readout on the screen with the vessel's main magnetic compass. Confirm that the compass is providing a reading.

You will compensate the compass and confirm the readout again in ***Test 3: Compass Automatic Compensation and Readout Confirmation***.

## Electrohydraulic Unit

1. Move the rudder to the center manually.
2. Press the AUTO/TRACK key once to enter Auto mode, and enter a 10 or 20 degree course change by turning the Rotary Knob.
3. Confirm that the rudder moves in the correct direction. If the rudder moves in the opposite direction, see the installation guides for the CPU and the installed rudder steering system to determine how to invert the right and left solenoids (power unit with the solenoids) or invert the wires of the motor (reversing power unit).

## Humminbird® GPS (required) and/or Chartplotter

(optional-purchase)

For proper communication between the Humminbird® GPS or Humminbird® Multi-Function Display (MFD) and the Autopilot control head, the Humminbird® MFD must be set to ouput NMEA 0183, which is typically the default setting.

**NOTE:**
**The autopilot can receive input from 2 satellite devices maximum. For example, they can be installed on the main deck or flying bridge. See your chartplotter, GPS receiver, and CPU installation guides for details.**

**To confirm that the chartplotter is enabled:**

1. On the autopilot control head, press the NAV/TURN key to enter Navigation mode.
2. Set a route on the Humminbird® MFD and start navigation.
3. Confirm that the bearing on the Humminbird® MFD matches the bearing on the autopilot control head.

**To confirm that the GPS receiver is connected:**

When a Humminbird® GPS is connected to the CPU, you will see the GPS icon displayed on the screen in Auto-Track mode.

1. On the autopilot control head, press and hold the AUTO/TRACK key to enter Auto-Track mode.
2. Confirm that the GPS icon is displayed on the screen. If the icon is not displayed, see the installation guides for the GPS receiver and the CPU to confirm the installation.

## Wind Direction Sensor (optional-purchase)

1. Confirm that the wind sensor is connected properly to the CPU and that WIND is enabled in the Installation Mode, NAV2 menu.
2. Press the NAV/TURN key twice to enter Wind mode.
3. Confirm that the wind bearing displayed on the screen is correct. If it is not correct, see the wind sensor guide to confirm installation.

## Test 2:
## Confirm Autopilot Performance on the Water

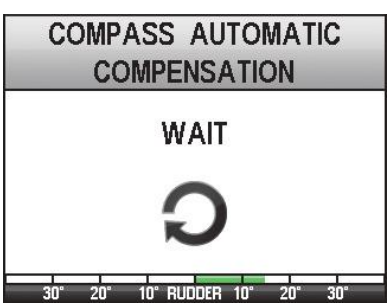
After Test 1 is completed, check the settings and equipment again while in open sea.

**WARNING!**
**While you are learning to use the autopilot, it is important to practice in calm, open sea, far from shallow water, vessels, or other obstacles.**

## Test 3: Compass Automatic Compensation and Readout Confirmation

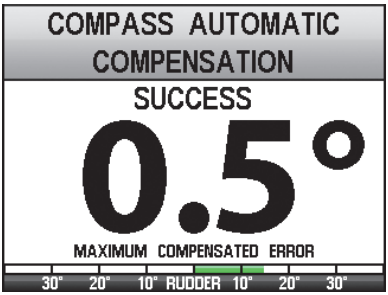
Use **Compass Automatic Compensation** to measure and automatically offset compass magnetic interference. It may also be necessary to run Compass Automatic Compensation if you have trailered the vessel to a new location that might have different magnetic zones.

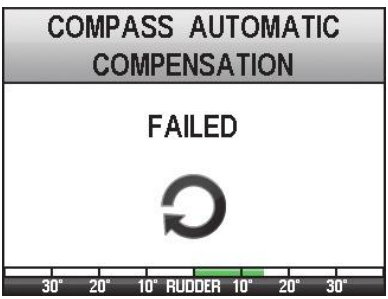
**WARNING!**
**Compass Automatic Compensation should be performed at slow speed, in calm, open sea, in a large area that is far from shallow water, vessels, or other obstacles.**




1. From Installation mode, press and hold the AUTO/TRACK key.
2. Steer the vessel in a circle, noting the following:

   **Settings & Speed:** The rudder should maintain a constant setting (within 5 to 15°), and it should take 1 - 2 minutes to complete the turn.




**Wait:** You may have to steer the vessel so it completes 2 or 3 complete circles. The screen will display "Wait" during this procedure.

3. When the procedure is complete, the screen will display SUCCESS or FAILED. If the procedure was successful, press the STANDBY/POWER key to exit.

   **Adjust:** If the compass setting must be tweaked slightly to match the analog compass, see the Compass Alignment setting in ***Control Head Configuration: Input Installation Settings***.

**If the procedure failed:** The compass might be installed in a location with too much magnetic interference. Check the compass location and possible magnetic disturbances in the area.

4. **Confirm the Compass Reading:** Compare the compass reading on the screen with the vessel's main magnetic compass.

   **If there is a big difference in the readings:** Check the compass installation location, or turn it on its vertical axis until the difference is cancelled. Zero the compass setting and follow the steps in the Automatic Compass Compensation section.

## Using the Autopilot

After an authorized marine technician has installed the control head and equipment, configured the control head, and then tested all equipment, the autopilot may be used in open water.

## Operation Modes: Introduction

The autopilot has several operation modes that allow the autopilot to steer the vessel. Operation modes are also determined by the optional-purchase equipment connected and enabled in the autopilot system. You will learn how to apply each operation mode on the following pages.

**WARNING!**
**Do NOT leave the autopilot unattended while it is steering the vessel. Watch for obstacles and potential hazards at all times. Be prepared to respond to changing conditions and take manual control of the vessel as required.**

**WARNING!**
**As you choose a new operation mode or type of navigation, the autopilot may make adjustments to the vessel's heading to successfully navigate the vessel. The vessel may turn automatically, and booms on sailboats may change direction quickly. It is important to monitor transitions and be aware of your surroundings.**

**WARNING!**
**If the autopilot is not following commands, or the boat makes sudden, unpredictable movements, press the STANDBY/POWER key to take manual control of the vessel. Contact an authorized technician (CMET or MEI) or our Customer Resource Center to confirm the installation and autopilot settings. If erratic behavior persists, remove the power to the CPU.**

The autopilot navigation modes are briefly described here. Proceed to ***Navigate with the Autopilot*** for more information.

- **Standby:** (Press the STANDBY/POWER key) During Standby mode, the autopilot is not controlling the vessel. Be prepared to control the vessel manually before initiating Standby mode.
- **Auto:** (Press the AUTO/TRACK key) Auto mode uses a compass to navigate towards the set heading. You can also choose a turn pattern and tack (with an optional-purchase wind sensor) in Auto mode. A compass must be connected to the autopilot system. See ***Bow Targeting*** for more information.
- **Auto-Track:** (Press and hold the AUTO/TRACK key) Also known as True Course, Auto-Track mode uses a Humminbird® GPS receiver to navigate. It is more accurate than Auto mode because it compensates for wind and drift to keep the vessel on a straight line course towards the heading you set. A GPS receiver must be connected to the autopilot system. See ***Bow Targeting*** for more information.
- **Nav:** (Press the NAV/TURN key) Nav mode allows you to enter a route on an attached Humminbird® Multi-Function Display or chartplotter. The autopilot will follow the route or any changes you make from the MFD. The MFD overrides the autopilot control head in this operation mode, so the ARROW keys and Rotary Knob are unavailable in Nav mode. A chartplotter and Humminbird® GPS must be connected to the autopilot system.
- **Follow Up:** (Press and hold the Rotary Knob) Follow Up mode allows you to steer the vessel with the autopilot control head's Rotary Knob. The Rotary Knob controls the vessel's rudder position from Follow-Up mode.
- **Wind:** (Press the NAV/TURN key twice) Wind mode allows the autopilot to detect the apparent wind across the bow of the vessel. You can set the wind angle, as well as tack or gybe from Wind mode. A wind sensor must be connected to the autopilot system.

## Multisensor Technology

Your SC 110 Autopilot uses multisensor technology. Several sensors can be connected to the autopilot system, and you can select the active sensor. The attached sensors also determine which operation modes are available on the autopilot system. The Gyronav Rate Sensor is always active when it is attached to the system.

**Multisensor Icon:** When an **M** is displayed above the active sensor icon on the screen, Multisensor mode has been enabled.

**Magnetic Compass Icon with Multisensor Enabled or Disabled**


Magnetic Compass only

Indicates Multisensor enabled

In **Standby mode**, the autopilot will automatically switch to the best available sensor. The autopilot will use the magnetic compass and Gyronav Rate Sensor at low speed (under 4 kts), and it will use the GPS receiver and Gyronav Rate Sensor at high speed (over 4 kts).

In **Auto, Auto-Track, Nav, and Wind mode**, the active sensor is displayed on the screen, but the active sensor does not switch automatically. If you initiate an operation mode while the vessel is traveling slower than 4 kts, then the compass sensor will be used even if the speed is increased. To use the GPS receiver as the active sensor, travel above 4 kts in Standby mode, and then initiate the desired operation mode.

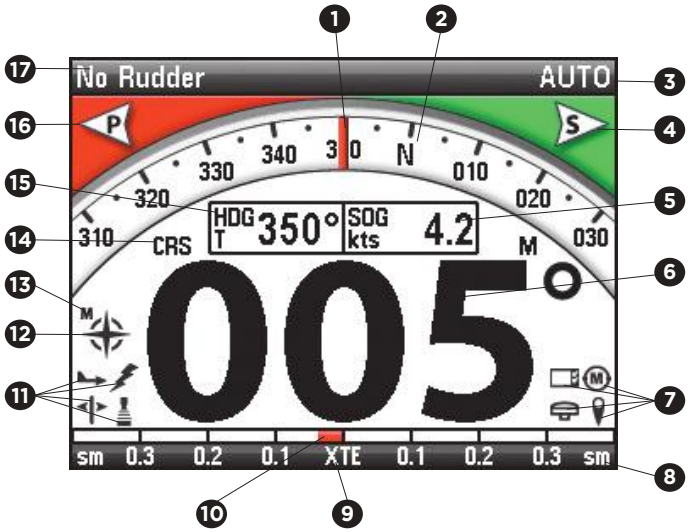
**NOTE:**
**If a black-out of the GPS receiver occurs, the autopilot will maintain the set course by using the compass as back-up.**

**Sensor Alarms:** If a sensor is unavailable, the system will display an alarm. For example, if the vessel is traveling slower than 4 kts in Auto-Track mode, the GPS icon will flash on the screen to indicate that the GPS COG (Course Over Ground) is not as accurate as the compass. In this case, you should switch to Auto mode.

See ***Control Head Configuration: Input Installation Settings*** to enable Multisensor mode.

## Default Display

The screen display shown here is shown when Standby, Auto, Auto-Track, Nav, and Follow-Up mode are active.

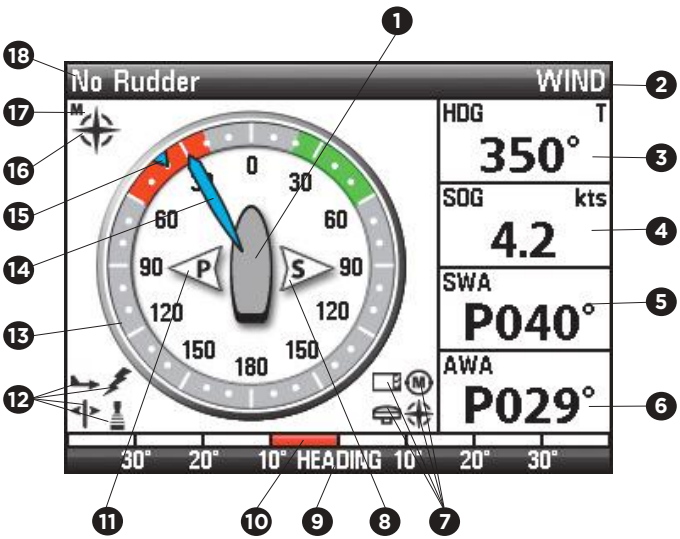


1. **Heading:** Red line indicates the heading of the vessel on the analog compass.
2. **Compass: Analog**
3. **Operation Mode:** Indicates the current operation mode.
4. **Starboard icon:** This icon will flash to indicate when the control head requires a tack direction.
5. **Information Display:** SOG (Speed Over Ground) or COG (Course Over Ground) will be displayed here. See ***Control Head Configuration*** to choose the readout setting.
6. **Big Digits:** Displayed information changes with the operation mode. In Standby or Follow-Up mode, the Heading (HDG) is displayed. In Auto, Auto-Track, or Nav mode, the Set Course (CRS) is displayed.
7. **Alarm Icons:** Icons will be displayed here to indicate an error or failure with the autopilot system. See also Alarms Text and the ***Alarms*** section of this manual for more information.
8. **Bar Graph Unit Setting:** Displays units of measure related to the heading, rudder position, or XTE (Cross Track Error)
9. **Bar Graph:** The information displayed here changes with the operation mode. In Auto mode, Heading is displayed. In Standby or Follow-Up mode, the Rudder position is displayed. In Auto-Track or Nav mode, the XTE is displayed.
10. **Heading, Rudder Position, or XTE** indicated on the bar graph.
11. **Alarm Icons:** see #7 above.
12. **Active Sensor:** Displays the active sensor providing the reading for the display.
13. **Multisensor:** When the "M" is shown on the screen, it indicates that Multisensor is enabled.
14. **Big Digits Indicators:** Indicates the information displayed by the Big Digits. Heading (HDG) or Course (CRS) will be displayed on the left, and Magnetic (M) or True North (T) will be displayed on the right.
15. **Heading** (Digital Readout): True North, Magnetic North
16. **Port Icon:** This icon will flash to indicate when the control head requires a tack direction.
17. **Alarm Text:** Information will be displayed here to provide an error or failure with the autopilot system. See also Alarm Icons and the ***Alarms*** section of this manual for more information.

## **Wind Display** (optional-purchase Wind Sensor required)

Wind mode has a special layout on the screen that represents the apparent wind and set wind across the bow of the vessel.

**NOTE:**
**Optional-purchase Wind Sensor required. Contact our Customer Resource Center for more information.**



1. **Vessel Icon**
2. **Operation Mode:** Indicates the current operation mode.
3. **Heading** (Digital Readout): True North, Magnetic North
4. **Information Display:** Speed Over Ground (SOG) or Course Over Ground (COG).
5. **Set Wind Angle digital readout**
6. **Apparent Wind Angle digital readout**
7. **Alarm Icons:** Icons will be displayed here to indicate an error or failure with the autopilot system. See also Alarm Text, and the ***Alarms*** section of this manual for more information.
8. **Starboard Icon:** This icon will flash to indicate when the control head requires a tack/gybe direction.
9. **Bar Graph:** Shows units of measure related to the heading, rudder position, or XTE (Cross Track Error)
10. **Heading, Rudder Position, or XTE** indicated on the bar graph.
11. **Port Icon:** This icon will flash to indicate when the control head requires a tack/gybe direction.
12. **Alarm Icons:** Icons will be displayed here to indicate an error or failure with the autopilot system. See also Alarm Text, and the ***Alarms*** section of this manual for more information.
13. **Wind Gauge**
14. **Apparent Wind Angle:** Indicates the direction of wind across the vessel.
15. **Set Wind Angle**
16. **Active Sensor:** Displays the active sensor providing the reading for the display.
17. **Multisensor:** When the “M” is shown on the screen, it indicates that Multisensor is enabled.
18. **Alarm Text:** Information will be displayed here to provide an error or failure with the autopilot system. See also Alarm Icons and the ***Alarms*** section of this manual for more information.

## Navigate with the Autopilot

There are many ways to navigate with the autopilot. It is important to consider the equipment attached to the autopilot system, the vessel speed, and the navigation intention.

**WARNING!**
**It is always important to monitor the vessel and your surroundings while using the autopilot. The autopilot does not detect land mass or obstacles. If you need to take manual control of the vessel, press the STANDBY/POWER key. Make sure you are fully prepared to manually control the vessel.**

## Standby Mode

During **Standby mode**, the autopilot is not controlling the vessel. Use Standby mode to move the rudder with the ARROW keys on the control head or with the Humminbird® TC 110 Joystick (optional-purchase). The Rotary Knob is not available in Standby mode.

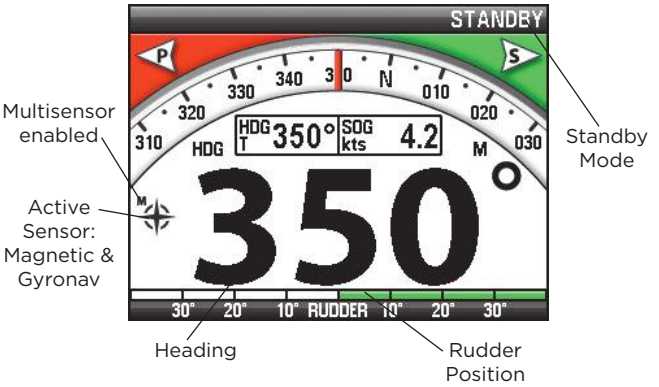
1. **To begin Standby mode:** Press the STANDBY/POWER key.
2. **To move the rudder:** Press the LEFT ARROW key or RIGHT ARROW key to move the rudder angle port and starboard respectively.

   **POWER STEER** will flash in the top, right corner of the screen while you make adjustments with the ARROW keys or optional-purchase TC 110 Joystick.

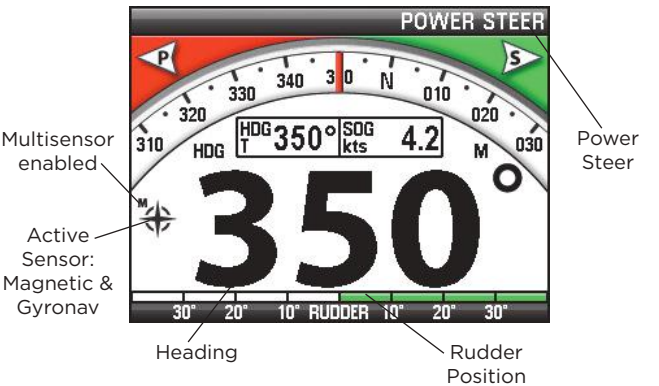
   **Multisensor:** If Multisensor is enabled, the autopilot will automatically switch between the attached Compass and GPS receiver as needed. See ***Multisensor Technology*** for more information.

**WARNING!**
**You must be fully prepared to manually control the vessel before you initiate Standby mode.**

**Autopilot in Standby Mode**




**Power Steer from Standby Mode**



## **Bow Targeting** (Auto or Auto-Track mode)

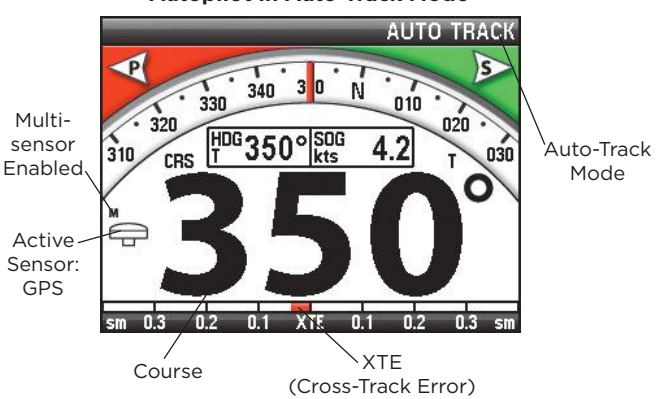
In Bow Targeting, the autopilot maintains the bow towards the heading you choose. You can bow target in Auto mode or Auto-Track mode.

The attached equipment and the travel speed influence which mode you should use. The active sensor will be displayed on the screen (see ***Multisensor Technology***).

**Auto Mode:** (compass required) The autopilot uses compass data to keep the vessel at the selected heading. Wind, current, or other conditions may cause the vessel to drift off course.

**Auto-Track Mode:** (GPS and travel speed above 4 kts required) Also known as True Course, the autopilot uses GPS data to keep the vessel at the selected heading. Auto-Track mode compensates for wind, current, and other conditions to keep the vessel on course.

**Autopilot in Auto-Track Mode**




**WARNING!**
**Do NOT leave the autopilot unattended while it is steering the vessel. Watch for obstacles and potential hazards at all times. Be prepared to respond to changing conditions and take manual control of the vessel as required.**

**To Bow Target in Auto or Auto-Track Mode:**

1. Be prepared to manually control the vessel, and then press the STANDBY/POWER KEY.
2. Move the rudder manually so that the bow is pointing toward your chosen heading or target.
3. Move the rudder manually so that it is centered and the vessel can begin navigation in a straight line.

4a. **Start Navigation in Auto Mode:** Press the AUTO/TRACK key. Navigation will begin immediately.

Adjust Heading: Turn the Rotary Knob slowly or press the LEFT or RIGHT ARROW keys. The Digital Compass will update to show your setting.

Each press of the ARROW keys change the heading in 1° increments. The Rotary Knob increases the heading change the faster you turn the Rotary Knob.

**WARNING!**
**Do not turn the Rotary Knob too quickly or press the ARROW keys repeatedly. Allow the vessel to transition to the selected heading, and do not make quick changes, especially at high speed.**

4b. **Start Navigation in Auto-Track Mode:** Press and hold the AUTO/TRACK key. Navigation will begin immediately.

Adjust Heading (not available): If you press the ARROW keys or turn the Rotary Knob to adjust the heading, the autopilot will change to Auto mode.

**NOTE:**
**In Auto or Auto-Track mode, you can use the optional-purchase TC 110 Joystick to temporarily deviate from the set course. See *Dodge* for more information.**

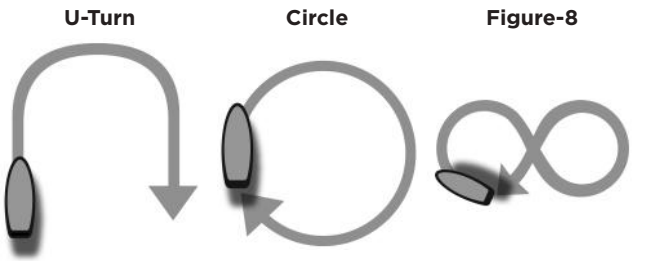
## **Auto Turn** (Auto mode, Compass required)

The Auto Turn feature is available in Auto mode. A compass must be connected to the autopilot system.

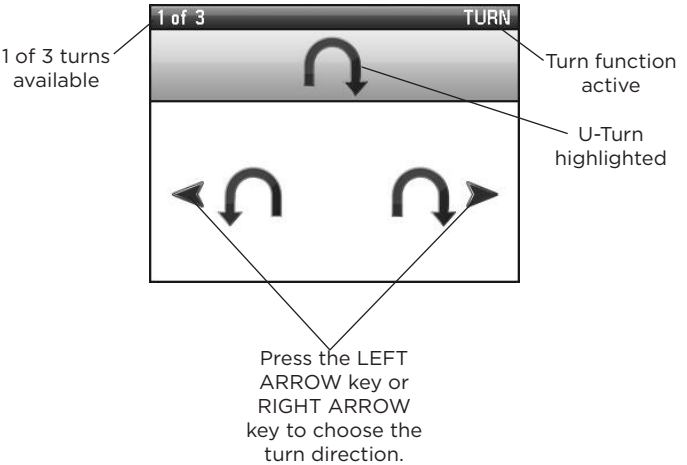
1. Press the AUTO/TRACK key to start Auto mode.
2. Press and hold the NAV/TURN key. TURN will be displayed in the top, right corner of the screen.
3. **Select a turn pattern:** Press the SET/BRIGHT key until the turn pattern you want is selected. You can choose U-Turn, Circle, or Figure 8.
4. **Select the turn direction:** To start the selected turn towards Port, press the LEFT ARROW key. To start the turn towards Starboard, press the RIGHT ARROW key.
5. The turn pattern will begin immediately, and the type of turn will be displayed on the top-right corner of the screen. When the U- turn is completed, the autopilot will resume Auto mode. The circle and Figure-8 patterns will continue until you input a new command.

   **To cancel the turn:** Press the STANDBY/POWER key.

**WARNING!**
**You must be fully prepared to manually control the vessel before you initiate Standby mode.**



**Choosing a Turn Pattern**




**WARNING!**
**The turn speed is controlled by the Turn Rate parameter (see *Control Head Configuration: Operating Parameters Wizard* and *Manage Control Head Settings: Change Autopilot Settings*) and the Rudder Offset setting (see *Control Head Configuration: Input Installation Settings*). Contact an authorized technician (CMET or MEI) or our Customer Resource Center to adjust these settings.**

**WARNING!**
**Do NOT leave the autopilot unattended while it is steering the vessel. Watch for obstacles and potential hazards at all times. Be prepared to respond to changing conditions and take manual control of the vessel as required.**

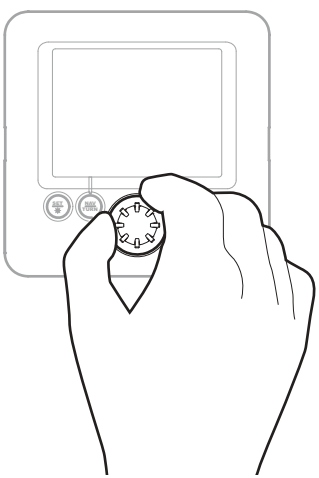
## **Follow-Up Mode** (Follow-Up mode)

Follow-Up mode allows you to steer the vessel using the Rotary Knob on the control head. It is important to familiarize yourself with how the Rotary Knob moves the rudder and therefore changes the vessel heading. Each click of the Rotary Knob increases the rudder angle in the direction you choose. Do not turn the knob too quickly. Also, the ARROW keys are unavailable in Follow-Up mode.

**WARNING!**
**Do not turn the Rotary Knob too quickly. Allow the vessel to transition to the selected heading, and do not make quick changes, especially at high speed.**

**WARNING!**
**When you activate Follow-Up mode, you are controlling the vessel with the Rotary Knob. You must be fully prepared to manually control the vessel before you initiate Follow-Up mode.**

**Using the Rotary Knob in Follow-Up Mode**



**To steer the vessel in Follow-Up Mode:**

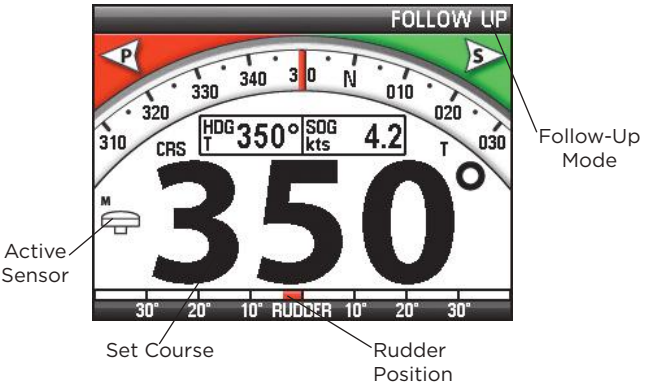
1. Press and hold the Rotary Knob on the control head. Follow-Up will be displayed in the top right corner of the screen.
2. Turn the Rotary Knob to steer the vessel.

   **Clockwise:** moves the rudder angle towards starboard.

   **Counterclockwise:** moves the rudder angle towards port.

   **To exit Follow-Up mode:** Press the STANDBY/POWER key and be prepared to take control of the vessel.

**Follow-Up Mode**




## Dodge

(optional-purchase TC 110 Joystick required;
Auto mode, Auto-Track mode, Nav mode only)

Dodge is a temporary deviation from the course or route selected in Auto, Auto-Track, and Nav mode. You may need to use Dodge to steer the vessel around an obstacle, away from shallow water, or away from other danger that the autopilot cannot detect. The TC 110 Joystick is required for this feature.

1. While navigating in Auto mode, Auto-Track mode, and Nav mode, move the joystick on the optional-purchase TC 110 Joystick as needed.
2. The autopilot maintains the current mode but it allows you to temporarily deviate from the set course. After the TC 110 Joystick is released, the autopilot will return to the previous mode and resume navigation.

**NOTE:**
**For more information about the Humminbird® TC 110 Joystick, contact our Customer Resource Center or see *humminbird.com* for details.**

## Navigate with Humminbird® Multi-Function Display

(Nav mode, chartplotter [optional-purchase], and Humminbird® GPS required)

The autopilot can be connected to an optional-purchase Humminbird® Multi-Function Display (MFD) or other optional-purchase chartplotter. The autopilot will follow any waypoint or route changes you make on the MFD.

1. Make sure you are prepared to take manual control of the vessel, and press the STANDBY/POWER KEY.
2. Move the rudder manually so that the bow is pointing in the direction of the first waypoint.
3. Move the rudder manually so that it is centered and the vessel can begin navigation in a straight line.
4. On the Humminbird® MFD, select the route or waypoint to which you want to navigate. Start navigation from the MFD.
5. On the autopilot control head, press the NAV/TURN key once to begin navigation. To initiate navigation from a chartplotter connected to Nav2 in the CPU, press the NAV/TURN key twice (NAV2 will be displayed).

    - **Unavailable Controls:** Because the autopilot is controlled by the settings in the Humminbird® MFD, the autopilot ARROW keys and Rotary Knob are unavailable in Nav mode.
    - **Alarm (No Route Input)**: Some chartplotters will pause at each waypoint mid-route or at the end of the selected route so that you may provide approval or the next command. When this happens, the autopilot is waiting for input. See the chartplotter screen to provide input or start a new route.

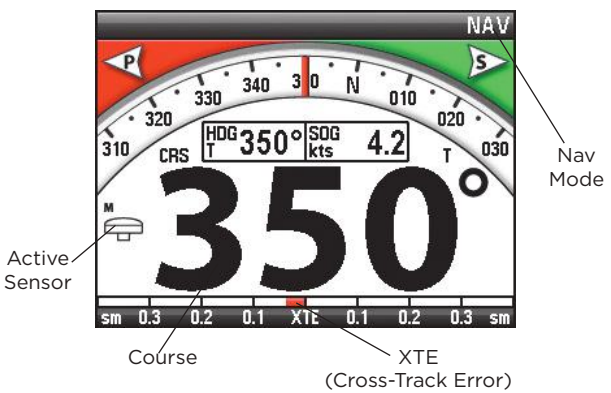
- **Dodge:** Move the joystick left or right on the optional-purchase TC 110 Joystick to temporarily deviate from the set course (see ***Dodge***).
- **To exit Nav Mode:** Press the STANDBY/POWER key.

**WARNING!**
**Do NOT leave the autopilot unattended while it is steering the vessel. Watch for obstacles and potential hazards at all times. Be prepared to respond to changing conditions and take manual control of the vessel as required.**

**WARNING!**
**When you initiate Standby mode, the autopilot will stop controlling the vessel. You must be fully prepared to manually control the vessel before you initiate Standby mode.**

**NOTE:**
**If you have connected more than one chartplotter to the CPU, the Nav2 Function must be set to Nav2 in the Installation Mode. See *Control Head Configuration: Start Installation Mode* for more information.**

**Nav Mode with Chartplotter Input**



## Wind Navigation

(Sailboat navigation only, Wind Sensor optional-purchase required)

**Wind mode** is designed for sailboats. A wind sensor must be connected to the autopilot system, and Wind must be enabled in the Installation settings. See ***Control Head Configuration*** and ***Wind Display*** for more information.

**WARNING!**
**The vessel will change direction automatically, and booms may swing with strong force. It is the operator's responsibility to make prudent decisions regarding personal safety and the operation of the vessel.**

**NOTE:**
**The Nav2 function must be set to Wind in Installation Mode to enable Wind mode. See *Control Head Configuration* for more information.**

## Set the Wind Angle (Wind mode, Wind Sensor required)

**Set Wind** allows you to adjust the vessel heading by setting the wind angle across the bow. The autopilot will be controlled by the wind direction, and it will follow any change in the wind direction automatically.

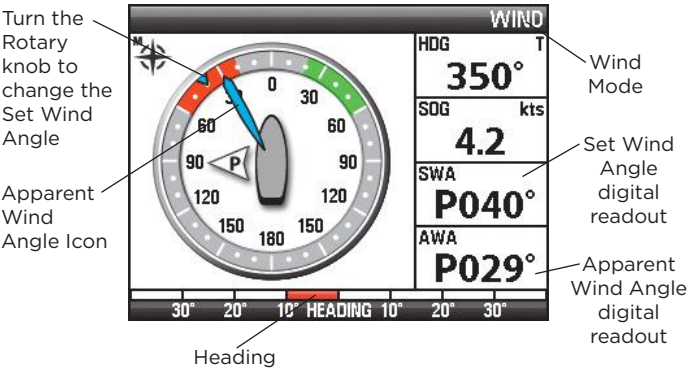
1. Press the NAV/TURN key twice to start Wind mode.
2. **Set Wind Angle:** Turn the Rotary Knob to move the blue arrow icon to the desired angle. Navigation will begin immediately.

   **On Course:** When the Apparent Wind Angle icon and the Set Wind Angle icon are lined up on the wind gauge, the vessel is navigating on course.

   **Adjust:** You can continue to change the set wind angle to adjust the heading by turning the Rotary Knob.

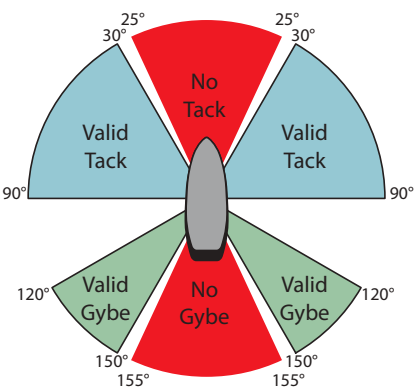
**WARNING!**
**Do not turn the Rotary Knob too quickly. Allow the vessel to transition to the selected heading, and do not make quick changes, especially at high speed.**

**Set the Wind Angle**

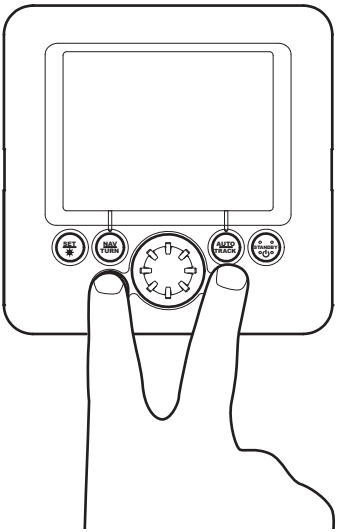



## **Tack or Gybe** (Auto or Wind mode [Wind Sensor required])

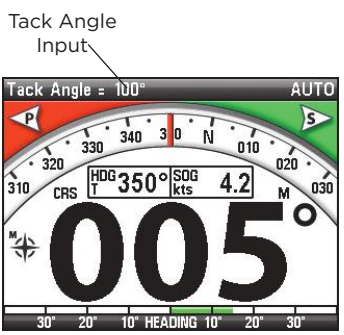
Tacking and Gybing are used to make a single shift in navigation so that the sailboat can navigate towards a target in relation to the wind. Tacking navigates the vessel into the wind, and Gybing navigates the vessel away from the wind. You can set the tack/gybe angle from Auto mode or Wind mode.



**Starting Tack/Gybe in Auto Mode**



**Setting the Tack Angle in Auto Mode**




## Tack in Auto Mode

1. Press the AUTO/TRACK key to begin Auto mode.
2. Press and hold both ARROW keys.
3. The top left of the screen will display **Tack Angle?**. Turn the Rotary Knob left or right to set the tack angle.
4. **To start the tack/gybe towards Port,** press the LEFT ARROW key.

   **To start the tack/gybe towards Starboard**, press the RIGHT ARROW key.

   - The screen will display a 5 second count down, and the control head will beep during the count down.
   - TACKING will be displayed in the top left corner during the navigation change.

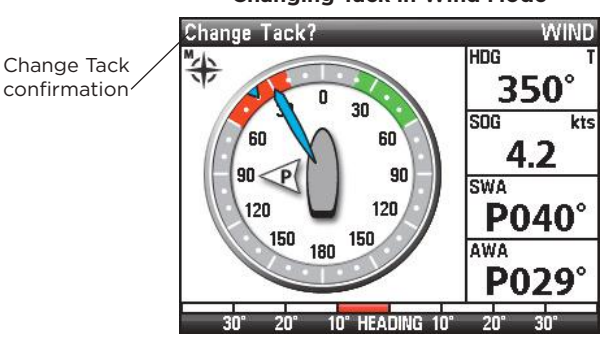
**WARNING!**
**Watch out for the swinging boom and other changing conditions on the vessel.**

## Tack/Gybe in Wind Mode

1. Press the NAV/TURN key twice to start Wind mode.
2. To choose a tack/gybe direction, press the LEFT ARROW key (Port) or RIGHT ARROW key (Starboard).
3. The top left of the screen indicates **Change Tack?** or **Change Gybe?**. Press the LEFT ARROW key (Port) or RIGHT ARROW key (Starboard) again to confirm the tack/gybe direction.
   - The screen will display a 5 second count down, and the control head will beep during the count down.
   - TACKING or GYBING will be displayed in the top left corner during the navigation change.

**NOTE:**
**If you do not press the ARROW key a second time, the tack/gybe command will expire, and the screen will return to Wind mode.**

**Changing Tack in Wind Mode**




**WARNING!**
**Watch out for the swinging boom and other changing conditions on the vessel.**

# Manage Control Head Settings

Once you are navigating and using your autopilot on the water, you may need to adjust some of the settings on the control head.

## Change the Backlight Setting

Use the following instructions to adjust the backlight setting on the autopilot control head.

1. Press and hold the SET/BRIGHT key.
2. Press the LEFT ARROW key or RIGHT ARROW key to decrease or increase the brightness respectively. You can also turn the Rotary Knob to change the setting.

   The setting is saved automatically, and the screen will return to the previous mode after 5 seconds.

   **Settings:** 1 to 10, where 1 = dim and 10 = brightest
   Default = 10

   If set to 8, 9, or 10, the key LEDs will turn off.

   **To Exit:** Press the STANDBY/POWER key.

## Switch the Active Compass

If a magnetic compass and a Gyrocompass are connected to the autopilot system, you may choose which compass is the active sensor. Also, see ***Control Head Configuration: Compass settings*** to enable each connected active sensor.

1. From Standby mode, press and hold the SET/BRIGHT key and the NAV/TURN key at the same time. The compass icon will flash on the screen.
2.  **To select the magnetic compass**, press the LEFT ARROW key.

    **To select the Gyrocompass**, press the RIGHT ARROW key.
3. To exit, and save the compass setting, press the STANDBY/POWER key.

## Reset to Factory Settings

The following instructions allow you to return the autopilot to the factory default settings. If you choose to reset the settings, the autopilot must be reconfigured. We recommend that you contact the Humminbird® Customer Resource Center before you proceed with this command.

**CAUTION!**
**The vessel must be safe at dock if you choose to reset the autopilot. Do NOT reset the autopilot at open sea. This command should be used with caution!**

**To reset the autopilot to factory default settings:**

1. Press the STANDBY/POWER key.
2. Press and hold the ARROW keys at the same time.
3. DONE will be displayed on the screen if the reset was successful.
4. Reconfigure the autopilot. See ***Control Head Configuration*** for detailed information.

## Change the Autopilot Settings

(Authorized Technicians only)

When the autopilot was configured, the yaw, rudder, counter rudder, and turn rate were automatically calculated using the Operating Parameters Wizard (see ***Control Head Configuration: Operating Parameters Wizard***).

**WARNING!**
**The settings in this section will override the settings created in the Operating Parameters Wizard. These settings should only be changed by an authorized technician (CMET or MEI), or contact our Customer Resource Center for assistance.**

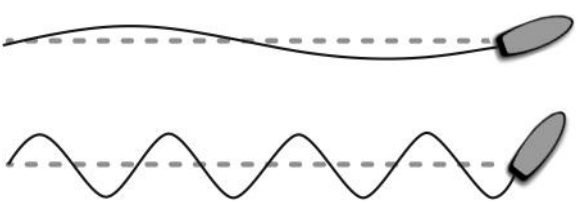
The following instructions demonstrate how to adjust these settings manually. The settings should be adjusted incrementally.

1. Press the SET/BRIGHT key.
2. Turn the Rotary Knob, or press the RIGHT ARROW key or LEFT ARROW key, to adjust the first menu option. The setting will be saved automatically. Press the SET/BRIGHT key to cycle to the next menu option.
    - **Saving:** The settings are saved automatically.
    - **Descriptions:** The menu options are described on the following pages.
    - **To exit:** Press the STANDBY/POWER key.

| Menu | Description | Settings |
|---|---|---|
| **Yaw** | Sets how far the vessel can deviate from a course. Increase the setting to allow for more deviation from the course, and decrease the setting to keep the vessel closer to the selected course. | 1 to 9<br>Default = 3 |
| **Rudder** | Adjusts the rudder efficiency. In general, increase the Rudder setting at low speed, and decrease the Rudder setting at high speed. See ***Adjusting the Rudder***. | .5 to 5<br>Default = 3.0 |
| **Counter Rudder** | Adjusts the counter rudder action in relation to the size of the vessel, which affects how the vessel stays on course. In general, use a higher setting (closer to 5) for large vessels and a lower setting (closer to 0) for small vessels. ***See Adjusting the Counter Rudder***. | 0 to 5<br>Default = 1 |
| **Turn Rate** | Turn Rate limits the rudder angle during turns. Increase the Turn Rate setting for tighter, faster turns, and decrease the setting for slower, wider turns. | 1 to 20<br>Default = 10 |

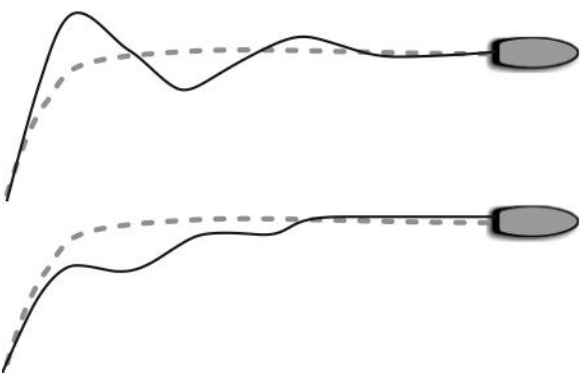
**WARNING!**
**If the vessel is traveling at high speed, it is important to decrease the Turn Rate setting. In general, these settings should be adjusted incrementally.**

**Adjusting the Rudder**




If the rudder value is set too high, the vessel will snake around the selected course. If the rudder value is set too low, the vessel will have difficulty navigating the course within reasonable time.

**Adjusting the Counter Rudder**

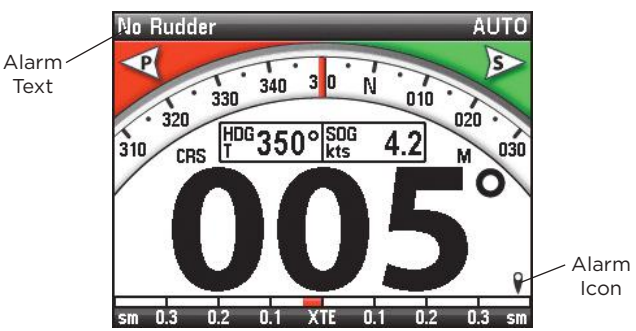


# Alarms

When there is an error or a failure within the autopilot system, the autopilot will alert you by displaying an alarm icon and related text on the screen. The control head will also beep. The following pages provide details about each type of alarm.

- **Audio Alarm:** The control head will beep.
- **Text Alarm:** Text information about the alert is displayed in the top left corner of the screen.
- **Alarm Icon:** An icon related to the problem will be displayed on the lower left or lower right portion of the screen.
- **Alarms On/Off:** See ***Control Head Configuration*** to set the Rudder Alarm and the Off Course Time Out.
- **Multiple Alarms:** The most important alarm will be shown first, and the succeeding alarms will flash on the screen.

**Auto Mode with Alarm Displayed**



| Icon | Alarm Text | Description | Solution |
|---|---|---|---|
|  | **No Compass** | Compass signal lost | Check compass installation and connection to the CPU. |
|  | **No Gyrocompass** | Gyrocompass signal lost | Check compass and Gyrocompass installation and connection to the CPU. |
| | **No Gyronav** | Gyronav signal lost | Check Gyronav installation and connection to the CPU. |
|  | **Compass Error** | Magnetic Interference | Increase the distance between the Gyrocompass and other electromagnetic devices. |
|  | **Tiller Failure** | Tiller failure on the remote control | Contact our Customer Resource Center. There may be keys failure or water inside the remote control. |
|  | **Off Course** | The vessel has traveled off course from the set route or heading. | Possible compass interference. Increase the distance between the compass and other electromagnetic devices. Check compass installation and connection to the CPU. |
|  | **No Wind Input** | Wind sensor input lost | Check wind sensor installation and connection to the CPU. See the Wind Sensor manual. |
|  | **No GPS Input** | Lack of GPS signal, GPS has not calculated the position, or the data transmission to the autopilot has been deactivated. | See the GPS manual to review troubleshooting. Check GPS installation and connection to CPU. |
|  | **No Rudder Feedback** | Rudder feedback signal not received. | Contact an authorized technician (CMET or MEI) or our Customer Resource Center. |

| Icon | Alarm Text | Description | Solution |
|---|---|---|---|
|  | **No Rudder** | Mechanical Failure: No rudder movement detected after commands are sent to the steering system. Rudder response negative. | A. Contact an authorized technician (CMET or MEI) or our Customer Resource Center. Possible failure of the electro hydraulic unit. |
| | | | B. Presence of air bubbles in the hydraulic circuit. Hydraulic circuit discharge recommended. |
| | | | C. Tighten the mechanical connection between the feedback and the rudder sector to reduce slack. |
|  | **No Route Input** | The autopilot is waiting for the next chartplotter command or chartplotter input lost. | See ***Navigate with Humminbird® MFD*** for more information.<br>Check the connection of the chartplotter to the CPU. See the Installation Mode settings to enable chartplotter input. |
|  | **Steering Motor Overload** | Electrical current over limit. | Contact an authorized technician (CMET or MEI) or our Customer Resource Center. Possible short-circuit on the electro hydraulic unit or solenoids, or electro hydraulic unit unsuitable for the processor box electronic. |
|  | **Low Battery** | Power source low | Charge the battery or confirm the fused panel connection. |
|  | **CPU Overheat** | Overheating of the CPU | Ventilate the area where the processor box is installed, or contact our Customer Resource Center. It is possible the electro hydraulic unit is unsuitable for the CPU. |

## Specifications

Display Size (diagonal) . . . . . 9 cm (3.5 in)

Pixel Matrix . . . . . QVGA 320 x 240

Display Type . . . . . Transmissive Color TFT

Display Colors . . . . . 65,000

Backlight . . . . . LED

Communication . . . . . NMEA 0183 Bus

IPX Rating . . . . . .
IP67 Waterproof/Submersible @ 1 m for 30 minutes and dust tight

Control Head Power Supply . . . . . CPU

**NOTE:**
**Product specifications and features are subject to change without notice.**

**ENVIRONMENTAL COMPLIANCE STATEMENT:** It is the intention of Johnson Outdoors Marine Electronics, Inc. to be a responsible corporate citizen, operating in compliance with known and applicable environmental regulations, and a good neighbor in the communities where we make or sell our products.

**WEEE DIRECTIVE:** EU Directive 2002/96/EC "Waste of Electrical and Electronic Equipment Directive (WEEE)" impacts most distributors, sellers, and manufacturers of consumer electronics in the European Union. The WEEE Directive requires the producer of consumer electronics to take responsibility for the management of waste from their products to achieve environmentally responsible disposal during the product life cycle.

WEEE compliance may not be required in your location for electrical & electronic equipment (EEE), nor may it be required for EEE designed and intended as fixed or temporary installation in transportation vehicles such as automobiles, aircraft, and boats. In some European Union member states, these vehicles are considered outside of the scope of the Directive, and EEE for those applications can be considered excluded from the WEEE Directive requirement.

This symbol (WEEE wheelie bin) on product indicates the product must not be disposed of with other household refuse. It must be disposed of and collected for recycling and recovery of waste EEE. Johnson Outdoors Marine Electronics, Inc. will mark all EEE products in accordance with the WEEE Directive. It is our goal to comply in the collection, treatment, recovery, and environmentally sound disposal of those products; however, these requirements do vary within European Union member states. For more information about where you should dispose of your waste equipment for recycling and recovery and/or your European Union member state requirements, please contact your dealer or distributor from which your product was purchased.

**ROHS STATEMENT:** Product designed and intended as a fixed installation or part of a system in a vessel may be considered beyond the scope of Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

## Contact Humminbird®

Contact the Humminbird® Customer Resource Center
in any of the following ways:

By Telephone:
(Monday - Friday 8:00 a.m. to 4:30 p.m. Central Standard Time):

**1-800-633-1468**

By e-mail:
(typically we respond to your e-mail within three business days):

**service@humminbird.com**

For direct shipping, our address is:

**Humminbird**
Service Department
678 Humminbird Lane
Eufaula, AL 36027 USA