

GTX[™] 330

Mode S Transponder



pilot's guide

© Copyright 2002
GARMIN Ltd. or its subsidiaries
All Rights Reserved

Except as expressly provided herein, no part of this manual may be reproduced, copied, transmitted, disseminated, downloaded or stored in any storage medium, for any purpose without the express prior written consent of GARMIN. GARMIN hereby grants permission to download a single copy of this manual and of any revision to this manual onto a hard drive or other electronic storage medium to be viewed and to print one copy of this manual or of any revision hereto, provided that such electronic or printed copy of this manual or revision must contain the complete text of this copyright notice and provided further that any unauthorized commercial distribution of this manual or any revision hereto is strictly prohibited.

This manual is written for software version 3.00, and is not suitable for earlier software versions. Information in this document is subject to change without notice. Visit the GARMIN web site (www.garmin.com) for current updates and supplemental information concerning the operation of this and other GARMIN products.

Software License Agreement

BY USING THE GTX 330, YOU AGREE TO BE BOUND BY THE TERMS AND CONDITIONS OF THE FOLLOWING SOFTWARE LICENSE AGREEMENT. PLEASE READ THIS AGREEMENT CAREFULLY.

GARMIN grants you a limited license to use the software embedded in this device (the “Software”) in binary executable form in the normal operation of the product. Title, ownership rights and intellectual property rights in and to the Software remain in GARMIN.

You acknowledge that the Software is the property of GARMIN and is protected under the United States of America copyright laws and international copyright treaties. You further acknowledge that the structure, organization and code of the Software are valuable trade secrets of GARMIN and that the Software in source code form remains a valuable trade secret of GARMIN. You agree not to decompile, disassemble, modify, reverse assemble, reverse engineer or reduce to human readable form the Software or any part thereof or create any derivative works based on the Software. You agree not to export or re-export the Software to any country in violation of the export control laws of the United States of America.



NOTE: The GTX 330D Diversity Mode S Transponder requires top and bottom mounted antennas.

Limited Warranty

This GARMIN product is warranted to be free from defects in materials or workmanship for one year from the date of purchase. Within this period, GARMIN will at its sole option, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs.

THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE.

IN NO EVENT SHALL GARMIN BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE, OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you.

GARMIN retains the exclusive right to repair or replace the unit or software or offer a full refund of the purchase price at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.

To obtain warranty service, contact your local GARMIN Authorized Service Center. For assistance in locating a Service Center near you, call GARMIN Customer Service at one of the numbers shown below.

GARMIN International, Inc.
1200 East 151st Street
Olathe, Kansas 66062, U.S.A.
Phone: 913/397.8200
FAX: 913/ 397.0836

GARMIN (Europe) Ltd.
Unit 4, The Quadrangle, Abbey Park
Industrial Estate, Romsey, SO51 9AQ, U.K.
Phone: 44/1794.519944
FAX: 44/1794.519222



NOTE: The GTX 330 owner accepts all responsibility for obtaining the proper licensing before using the transponder.

NOTE: The coverage you can expect from the GTX 330 is limited to "line of sight". Low altitude or aircraft antenna shielding by the aircraft itself may result in reduced range. Range can be improved by climbing to a higher altitude. It may be possible to minimize antenna shielding by locating the antenna where dead spots are only noticed during abnormal flight attitudes.

CAUTION: The GTX 330 should be turned off before starting or shutting down aircraft engine(s).



The GTX 330 transponder is powered on by pressing the **STBY**, **ALT** or **ON** keys, or by a remote avionics master switch (if applicable). After power on, a start-up page is displayed while the unit performs a self test. (See your Garmin dealer for software upgrades.)

Mode Selection Keys

OFF — Powers off the GTX 330. Pressing **STBY**, **ON** or **ALT** key powers on the transponder displaying the last active identification code.

STBY — Selects the standby mode. When in standby mode, the transponder will not reply to any interrogations.

ON — Selects Mode A. In this mode, the transponder replies to interrogations, as indicated by the Reply Symbol (Ⓜ). Replies do not include altitude information.

ALT — Selects Mode A and Mode C. In **ALT** mode, the transponder replies to identification and altitude interrogations as indicated by the Reply Symbol (Ⓜ). Replies to altitude interrogations include the standard pressure altitude received from an external altitude source, which is not adjusted for barometric pressure. The **ALT** mode may be selected in aircraft not equipped with an optional altitude encoder; however, the reply signal will not include altitude information.



Any time the function **ON** or **ALT** is selected the transponder becomes an active part of the Air Traffic Control Radar Beacon System (ATCRBS). The transponder also responds to interrogations from TCAS equipped aircraft.



Code Selection

Code selection is done with eight keys (**0 – 7**) providing 4,096 active identification codes. Pushing one of these keys begins the code selection sequence. The new code is not activated until the fourth digit is entered. Pressing the **CLR** key moves the cursor back to the previous digit. Pressing the **CLR** key when the cursor is on the first digit of the code, or pressing the **CRSR** key during code entry, removes the cursor and cancels data entry, restoring the previous code. You may press the **CLR** key up to five seconds after code entry is complete to return the cursor to the fourth digit. The numbers 8 and 9 are not used for code entry, only for entering a Count Down time, contrast and display brightness, and data selection in the Configuration Mode.



Important Codes:

1200— The VFR code for any altitude in the US (Refer to ICAO standards elsewhere)

7000— The VFR code commonly used in Europe (Refer to ICAO standards)

7500— Hijack code (Aircraft is subject to unlawful interference)

7600— Loss of communications

7700— Emergency

7777— Military interceptor operations (Never squawk this code)

0000— Military use (Not enterable)

Avoid selecting code 7500 and all codes in the 7600-7777 range. These codes trigger special indicators in automated facilities. An aircraft's transponder code is used for ATC tracking purposes, therefore exercise care when making routine code changes.

Keys for Other GTX 330 Functions



IDENT— Pressing the **IDENT** key activates the Special Position Identification (SPI) Pulse for 18 seconds, identifying your transponder return from others on the air traffic controller's screen. The word 'IDENT' will appear in the upper left corner of the display while the IDENT mode is active.



VFR— Sets the transponder code to the pre-programmed VFR code selected in Configuration Mode (this is set to 1200 at the factory). Pressing the **VFR** key again restores the previous identification code.



FUNC— Changes the page shown on the right side of the display. Display data includes Pressure Altitude, Flight Time, Count Up and Count Down timers. In the Configuration Mode, steps through the function pages.



START/STOP— Starts and stops the Altitude Monitor, Count Up, Count Down and Flight timers. In configuration mode, steps through functions in reverse.



CRSR— Initiates starting time entry for the Count Down timer and cancels transponder code entry. Returns cursor to last code digit within five seconds after entry. Selects changeable fields in Configuration Mode.



CLR— Resets the Count Up, Count Down and Flight timers. Cancels the previous keypress during code selection and Count Down entry. Returns cursor to the fourth code digit within five seconds after entry. Used in Configuration Mode.



8— Reduces Contrast and Display Brightness when the respective fields are displayed and enters the number eight into the Count Down timer. Used in Configuration Mode.



9— Increases Contrast and Display Brightness when the respective fields are displayed and enters the number nine into the Count Down timer. Used in Configuration Mode.

Function Display

PRESSURE ALT
FL 123

PRESSURE ALT: Displays the altitude data supplied to the GTX 330 in feet, hundreds of feet (i.e., flight level), or meters, depending on configuration.

FLIGHT TIME
00:00:13

FLIGHT TIME: Displays the Flight Time, controlled by the **START/STOP** and **CLR** keys when Automated Airborne Determination is configured as normal. Under Automated Airborne Determination control, the timer begins when lift off is sensed.

ALT MONITOR
200' ABOVE

ALTITUDE MONITOR: Controlled by **START/STOP** key. Activates a voice alarm and warning annunciator when altitude limit is exceeded.

OAT 0°C
DALT 13386'

OAT/DALT: Displayed when the GTX 330 is configured with temperature input. Displays Outside Air Temperature and Density Altitude.

COUNT UP
00:01:05

COUNT UP TIMER: Controlled by **START/STOP** and **CLR** keys.

COUNT DOWN
00:03:25

COUNT DOWN TIMER: Controlled by **START/STOP**, **CLR**, and **CRSR** keys. The initial Count Down time is entered with the **0 – 9** keys.

CONTRAST
[Progress bar]

CONTRAST: This page is only displayed if manual contrast mode is selected in Configuration Mode. Contrast is controlled by the **8** and **9** keys.

DISPLAY
[Progress bar]

DISPLAY: This page is only displayed if manual backlighting mode is selected in Configuration Mode. Backlighting is controlled by the **8** and **9** keys.

GTX 330 Configuration Mode

The GTX 330's configuration is normally set at time of installation, including the unique Mode S aircraft address. To view or change any of the GTX 330 configuration parameters, you must access the GTX 330 Configuration Mode. Use caution when changing configuration. When in doubt, contact your authorized GARMIN Aviation Service Center. Your Garmin dealer can assist in configuration changes. The Configuration Mode should not be used during flight.

To use the GTX 330 Configuration Mode:

1. Press and hold the **FUNC** key while powering on the unit using the **STBY**, **ON**, or **ALT** key (or using an avionics master switch).
2. Press the **FUNC** key to sequence through the configuration pages. Press the **START/STOP** key to sequence in reverse. Reverse sequence stops on the Display Mode page.
3. Use the **CRSR** key to highlight selectable fields on each page.
4. When a field is highlighted, use the **8** or **9** keys to select changeable fields or the **0 – 9** keys to enter numeric data.
5. Press the **CRSR** key to confirm list selections.

Altitude Trend Indicator

When the 'PRESSURE ALT' page is displayed, an arrow may be displayed to the right of the altitude, indicating that the altitude is increasing or decreasing. One of two sizes of arrows may be displayed depending on the rate of climb/descent. The sensitivity of these arrows is set using the GTX 330 Configuration Mode vertical speed rate.

Timer Operation

To operate the Flight Timer:

1. Press the **FUNC** key until 'FLIGHT TIME' is displayed.
2. If the GTX 330 is configured with Automated Airborne Determination, the timer will begin automatically when the unit senses that the aircraft has become airborne. The timer may be reset to zero at every lift off, continue accumulating time at lift off or may be controlled manually.
3. If desired, you may press **START/STOP** to pause or restart the timer.
4. Press **CLR** to reset the timer to zero.
5. If the timer is configured to start automatically it will pause when the Automated Airborne Determination senses that the aircraft is on the ground.

To operate the Count Up timer:

1. Press the **FUNC** key until 'COUNT UP' is displayed.
2. If necessary, press **CLR** to reset the Count Up timer to zero.
3. Press **START/STOP** to count up.
4. Press **START/STOP** again to pause the timer.
5. Press **CLR** to reset the timer to zero.

To operate the Count Down timer:

1. Press the **FUNC** key until 'COUNT DOWN' is displayed.
2. Press **CRSR** and use the **0 - 9** keys to set the initial time. All digits must be entered (use the 0 key to enter leading zeros).
3. Press **START/STOP** to count down.
4. Press **START/STOP** again to pause the timer.
5. When the Count Down timer expires, the 'COUNT DOWN' banner is replaced with a flashing 'EXPIRED', and the time begins counting up.
6. Press **CLR** to reset the timer to the initial time value.

Automatic ALT/GND Mode Switching

If the GTX 330 is configured with Automated Airborne Determination, normal operation begins when liftoff is sensed. When the aircraft is on the ground the screen automatically displays GND. The transponder does not respond to ATCRBS interrogations when GND is annunciated. When a delay time is set in the Configuration Mode, the GTX 330 waits a specified length of time after landing before changing to GND mode.

Failure Annunciation

If the unit detects an internal failure, the screen displays FAIL.

GTX 330 Mode S Transponder Features

Traffic Information Service

The GTX 330 Mode S transponder provides a data link for Traffic Information Service (TIS). TIS provides a graphic display of traffic information in the cockpit for non-TCAS equipped aircraft. Transponder-equipped aircraft can be displayed within the coverage volume on indicators such as a Garmin 430 or 530, within range of your position. Aircraft without an operating transponder are invisible to TIS. Refer to 400/500 series pilot literature for details.

Mode S Data transmission

In addition to 4096 code and pressure altitude, the GTX 330 is capable of transmitting aircraft registration number or flight ID, transponder capability and maximum speed range.

Audio Alerts

(Configuration options; male/female voice or tone, and volume level.)

- “Leaving Altitude” Altitude deviation is exceeded.
- “Traffic” TIS traffic alert is received.
- “Traffic Not Available” TIS service is not available or out of range.
- “Timer Expired” for countdown time.



© 2002 GARMIN Ltd. or its subsidiaries

GARMIN International, Inc.
1200 East 151st Street, Olathe, Kansas 66062, U.S.A.

GARMIN (Europe) Ltd.
Unit 5, The Quadrangle, Abbey Park Industrial Estate, Romsey, SO51 9AQ, U.K.

GARMIN Corporation
No. 68, Jangshu 2nd Road, Shijr, Taipei County, Taiwan

www.garmin.com

Part Number 190-00207-00 Rev. A