

# KT76 Transponder



Version 1.5  
 Revised January 8, 2013  
 Copyright © 2012 by FSD International, Inc. All rights reserved.

## EULA

All rights reserved per the terms of the [End User License Agreement](#) at the end of this document. Please take the time to review it.

## Getting Started

This system utilizes advanced computer technology normally found only in high-end general aviation avionics. It does this by utilizing state of the art computer components. It is strongly recommended that pilots acquaint themselves with the features and controls described in this manual prior to using it in flight.

## System Requirements

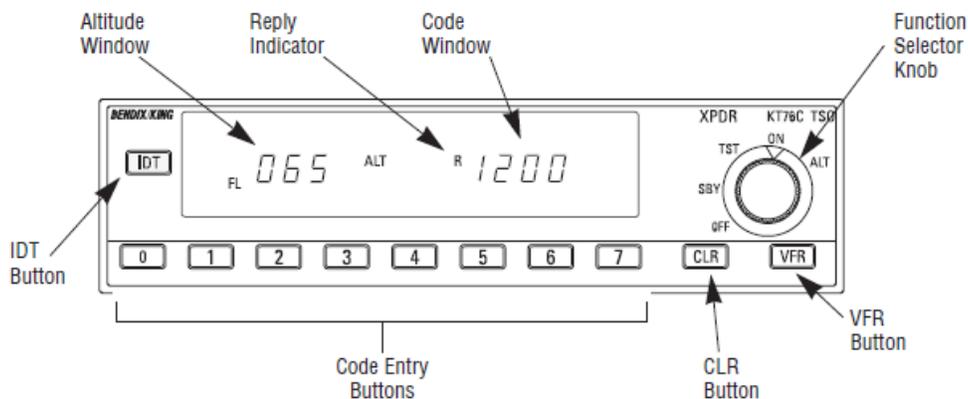
- Microsoft Flight Simulator X
- Windows XP, Windows Vista, or Windows 7 - 32 or 64 bit versions.

## About Transponders

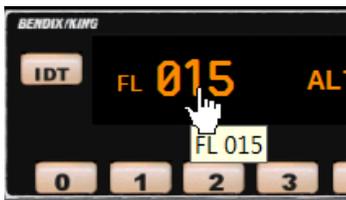
The KT76 Transponder is a radio transmitter and receiver that operate on Radar frequencies. Receiving ground radar interrogations at 1030 MHz, it returns a coded response of pulses to ground-based radar on a frequency of 1090 MHz. As with other Mode A/Mode C transponders, the KT76 replies with any one of 4,096 codes, which differ in the position and number of pulses transmitted. By “replying” to ground transmissions, your KT76 enables ATC computers to display aircraft identification, altitude and ground speed on Enroute, Approach or Departure Control Radar screens. When the IDENT button is pressed, your aircraft will be positively identified to the Air Traffic Controller.

## 1. Basic Operation

All controls required to operate the KT76 are located on the unit front panel.



## DISPLAY TOOLTIPS



In addition to the digital output display, a tooltip over each individual display is available, showing the display data.

This is particularly useful on panels where the gauge is sized very small, and the display may be difficult to read.

## TOGGLE RADIO STACK POPUP



In the upper left-hand corner of the unit, a small mouse hotspot can toggle the radio stack popup panel on/off, for convenience.

## POWER SUPPLY

Operation Unit power is turned on and off by increasing the *Function Selector Knob* past the 'OFF' position. The aircraft's Avionics Master Switch must also be in the 'ON' position.

Before starting your aircraft's engine, make sure that the *Function Selector Knob* is turned to OFF.

## FUNCTION MODES

## FUNCTION SELECTOR KNOB



This 5-position rotary controls sets the following modes of operation, starting from counter-clockwise:

1. OFF - Power Off.
  2. STBY – Standby mode.
  3. TST – Test mode.
  4. ON – Normal operating mode
  5. ALT – Altitude mode.
1. OFF - By default, the KT76 starts in OFF position. If, when the aircraft is loaded, the simulator is already airborne, and the *Master Avionics Switch* is in the 'ON' position, the unit will automatically start in the 'ON' (4) mode.
  2. STBY – A new frequency can be selected in this mode, but the transponder is not sending the selected reply code. The display will annunciate STBY in the lower right corner.
  3. TST – In this mode the KT76 undergoes an internal frequency counter test to validate the code that is presently entered into the system. To initiate the test, rotate the *Function Selector Knob* to TST, and then press the *IDT Key*. While the test is underway, the *Code Window* will flash, and TST will be annunciated on the display in the lower right corner (see Figure 1). The transponder is not sending the selected reply code while in *Test Mode*.
  4. ON – In this mode the selected reply code is being transmitted, in Mode A reporting form.
  5. ALT – In ALT Mode the selected reply code is transmitted in Mode C altitude reporting form for ATC.



Figure 1



Figure 2

#### ALTITUDE DISPLAY

The KT 76 displays Flight Level Altitude, marked by the letters “FL” and a number in hundreds of feet, on the left side of the display. For example, the reading “FL 041” corresponds to the altitude of 4,100 feet referenced to 29.92 inches of mercury at sea level. Flight Level Altitude represents “pressure altitude,” and should not be confused with true altitude.. ‘ALT’ will be displayed in the center of the display (see Figure 2).

Please note that the displayed altitude may not agree exactly with the aircraft’s altimeter when flying below 18,000 feet, because encoders are preset to 29.92 inches of mercury. An encoder’s altitude transmission is automatically corrected for proper altimeter setting by a ground based computer, to present the correct altitude to the controller.

In case of failure of the encoded altimeter in your aircraft, the display will annunciate ‘----’.

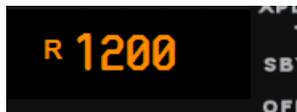


Figure 3

## REPLY CODE

Select the proper reply code by pressing the desired code entry keys (Figure 3) in sequence. The Reply Code is set upon entry of the 4<sup>th</sup> key in the sequence. Pressing the *CLR* Key at any time during this sequence (before the 4<sup>th</sup> digit) will cancel the new frequency selection, returning to the previous reply code.

The reply code will be displayed in the *Code Window*. Before takeoff, rotate the function selector knob to the ALT (altitude) position for Mode C altitude reporting to ATC. If you do not have an encoding altimeter, rotate the function switch to ON for Mode A reporting.



As the ground station transmits its interrogation pulses on an "uplink" frequency of 1030 Megahertz, and the transponder *replies* on a "downlink" frequency of 1090 Megahertz. The display will annunciate 'R' when the KT76 is replying to the interrogation signal.

The reply code can be selected in either STBY, ON or ALT modes.

In case of any system failure '----' will be displayed in the *Code Window*.

## SYSTEM TEST

An internal test mode is provided to check for faults, and insure the accuracy of the Reply Code. To initiate a test, move the *Function Selector Knob* to TST, and then press the *IDT* Key.



Figure 4

The Code Window will flash for 10-20 seconds while the internal system interrogates the reply code, checking for accuracy. 'TST' will be displayed. When the *Code Window* no longer flashes the test is complete. If successful, the selected code will still be displayed, otherwise '----'.

## VFR MODE



Figure 5

Pressing the VFR Key (Figure 5) will enter the pre-programmed VFR Reply Code of 1200. The previous Reply Code will be held in memory. Pressing the key again will reset this stored Reply Code.

While in VFR Mode, 'VFR' will be annunciated in the lower right corner of the display.

## SQUAWK IDENT

When you are asked to "Ident" by ATC, press the IDT button. The reply indicator will illuminate continuously for 18 seconds during the Ident interval.

The interrogation annunciator 'R' will flash during this period (Figure 6).

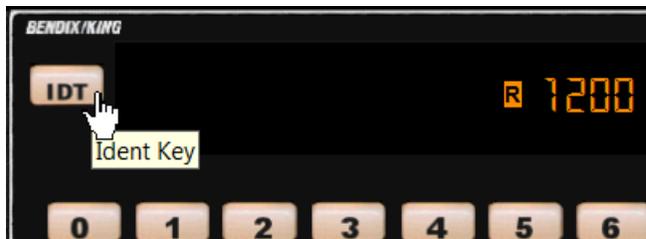


Figure 6