Reality XP
Jet Line 2

User's Manual

About this manual
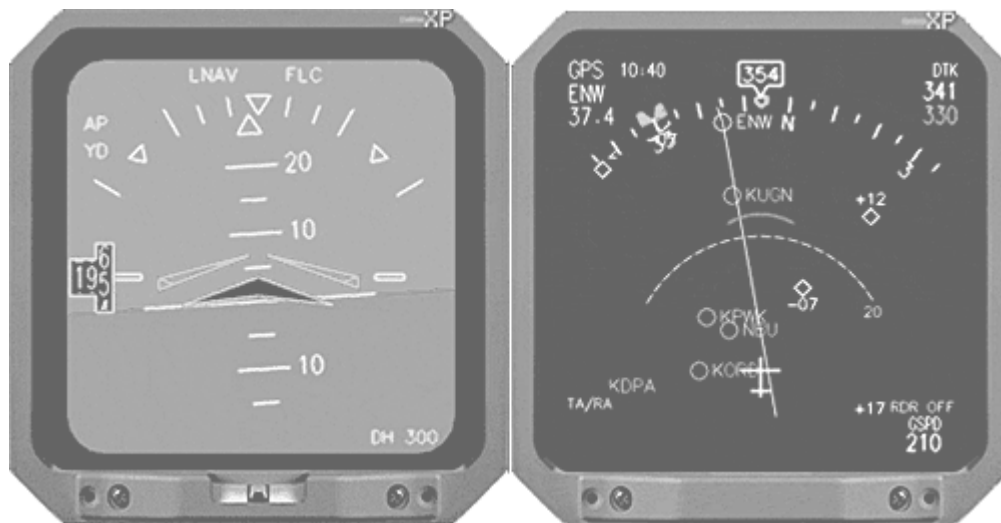
This manual is intended for flight simulation purposes only, and shall not be used for any real world aviation application or reference.

This manual is intentionally written using "gray scale" colored text in many areas, and much of the print is intentionally this medium gray color. This has been done to conserve ink while printing. In some cases "black" type has been used for emphasis. Photographs used in this manual have also been reduced to black and white, and also in contrast in order to conserve ink. Please be sure to double-check your printer's settings prior to printing in order to achieve the best results. We have tested, and experienced no issues printing this manual on laser printers. If you are experiencing a problem using a laser printer, you should check the printer's quality settings.

By reading this manual you should become well acquainted with the product, and should be able to obtain the information necessary to "fly" the product within Flight Simulator.

Please take the time to read this manual completely; so that you can become properly acquainted with the product and its operation.

We thank you for having chosen a Reality XP Product and wish you a pleasant and a safe virtual flight with us.

Important information

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Standard Disclaimer

This software is designed **for entertainment only**. Although we have designed the product to resemble and function like the original, it is not designed as a training device. Not all systems have been simulated, and some of those that have been simulated may not be entirely functional.

NOT FOR USE IN REAL FLIGHT OR AIRPLANE OPERATION.
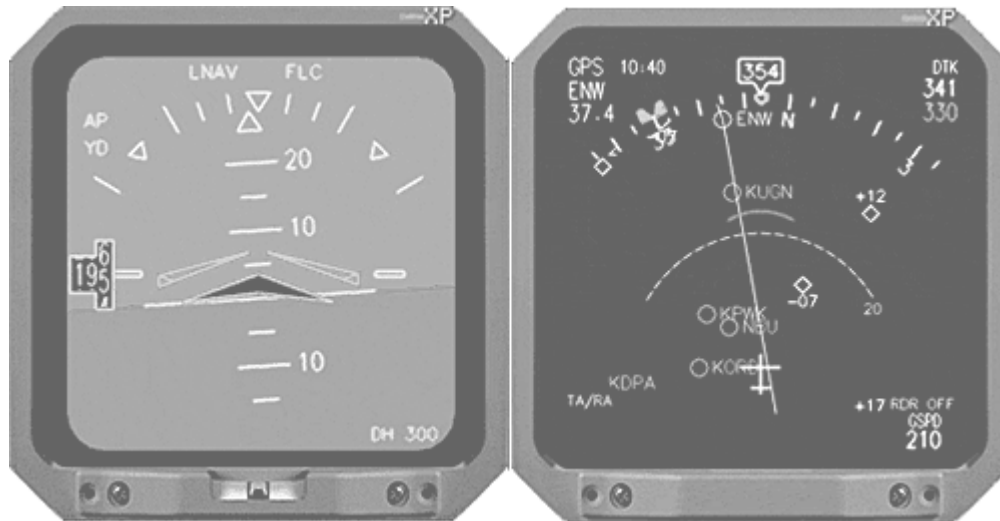

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Table of Contents

Jet Line 2 overview

The Jet Line 2 is a comprehensive full-featured EFIS system. Its modern components replace many of the gauges in similar Flight Simulator aircrafts, or other third party aircraft. The system is composed of five units:

- EADI: Electronic Attitude and Direction Indicator
- Navigation Display with EHSI and moving map
- Dual RTU: Radio Tuning Units and EFIS control
- Icons to hide/show the units.

With Jet Line Avionics, you will be flying a simulated avionics package capable of providing the same features and benefits as the real avionics. The Reality XP Jet Line package is so realistic that pilots can use it as a training tool to familiarize themselves with the workings of the actual equipment. Each button and knob is fully functional and performs identically to its real-world counterpart.

Important information for customers of a previous version

The Jet Line 2 2005 is a major upgrade from previous versions. In addition to some gauge name changes, several configuration settings may work differently.

After installation, a new program group is accessible from your Windows Start Menu \ Reality XP. This program group contains the necessary utilities and documentation. Make sure you review all available documentation.

Please take the time to read all manuals completely; so that you can become properly acquainted with the product and its operation.

Getting Started

The Jet Line 2 is a Flight Simulator compatible gauge and can be configured in any Flight Simulator aircraft panel. The Flight Simulator Beech King Air 350 is automatically configured with the Jet Line 2 during install. Additional retrofits are available in the Reality XP's Community library web site.

The software package includes an easy to use configuration program to assist with configuration. When first started, Jet Line 2 Config detects and prompts you with all available aircrafts and panels with the "select an aircraft" panel. Flight Simulator has an open architecture that permits several aircraft to share the same panel, and the selected aircraft can use different panel configurations. Not all available aircraft and panels configurations are listed in the "select an aircraft": Jet Line 2 Config lists only the unique combinations of both aircraft and panels.

NB: Jet Line 2 Config operation, advanced panel integration and Jet Line gauges settings are covered in separate documents. Make sure to review the complete documentation located in your Windows Start Menu / Reality XP program group.
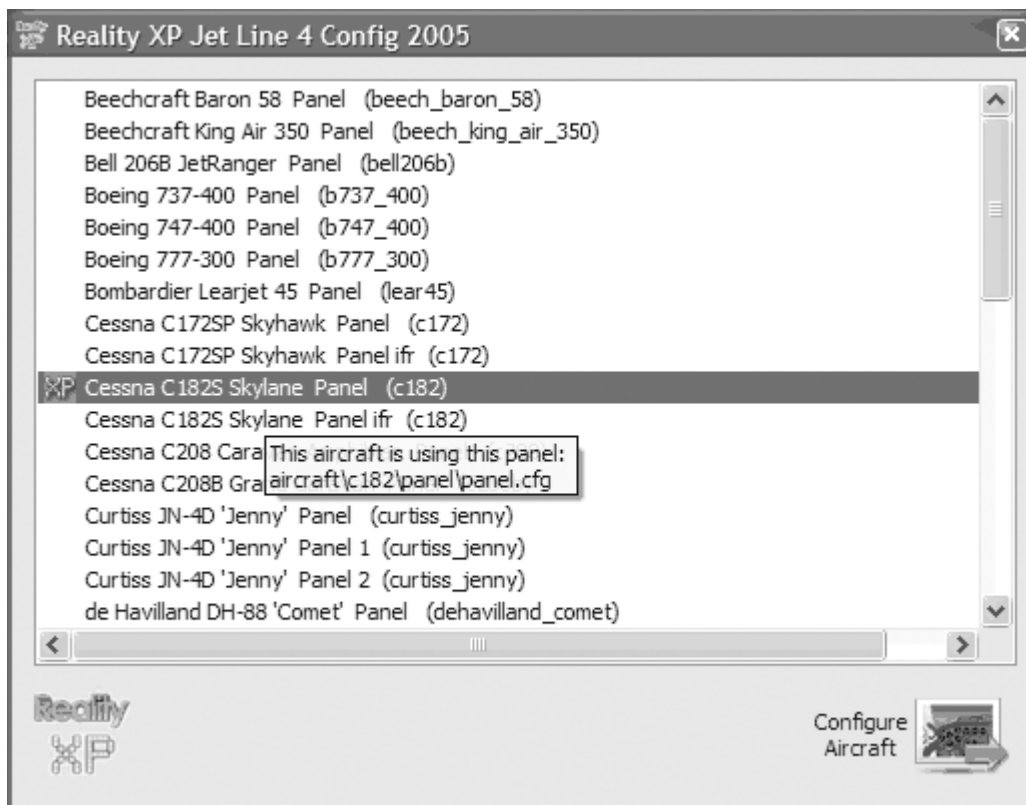
screenshot of Jet Line 4 Config

General features

All of the Reality XP gauges and controls utilize a relatively unique implementation of click spots. They work as follows:

1. As your mouse cursor passes over a click spot on the panel it will cause it to turn from an arrow cursor into a "hand" cursor. There are no **+** or **–** click spots: the hand cursor will be empty.
2. Whenever a single click spot is used, and depending upon its function a left click will accomplish the same task as a right click. In other cases, a left click will accomplish one task, while a right click will accomplish another.
3. In some cases the click spot will not function as stated above, but instead will feature separate functions for the left and right clicks. Example: For a toggle switch with 3 positions, a left click will move the switch in one direction, while a right click will move it in the opposite direction.
4. Certain click spots will work with left and right clicks, and the mouse wheel, if your mouse is so equipped. This type of click spot is used on gauges that require adjustment, such as the knobs, etc. In this case the left click turns the item "left" and a right click turns it "right". Forward / back scrolling on your mouse wheel will also do the same.

Tool-tips

By turning on FS "Tool Tips" you will see descriptions of these clicks spots when your mouse cursor is placed over them.

Gauges settings

The gauges can be configured for a variety of panel/aircraft situation. These features are designed to get the most out of Flight Simulator.

Configuration File

Jet Line 2 Config provides a graphical user interface to most of the settings provided for the Jet Line 2. These settings are configured in several files located in:

```
[fs9]\RealityXP\Common\Settings\
```

Refer to the additional Jet Line Service Manual (located in your Windows Start Menu \ Reality XP program group) for additional details and configuration options.

Integration with Flight Simulator

This section details the enhanced navigational capabilities with this product.

Navigation data and Flight Simulator

Flight Simulator is designed to work with a single GPS source. Gauges made with the Flight Simulator SDK (Software Development Kit) can only access three basic sources of information:

1. VOR: related to VLoc type of information such as signal strength, CDI deviation.
2. HSI: to display both VLoc and GPS information. The type of information is selected with the typical FS Nav/Gps switch.
3. GPS: to display GPS only information, like desired track, cross track etc…

Enhanced capabilities with Reality XP

When a Reality XP product is loaded that offers additional Navigation Information the flight simulator Options Menu displays an additional "Navigation Device" selection. The possible entries in the menu are described below.

The Reality XP technology enhances the basic capabilities to offer realistic options to the virtual pilot. The following diagram shows the basic Flight Simulator structure, and the enhancements introduced with the Reality XP solution:
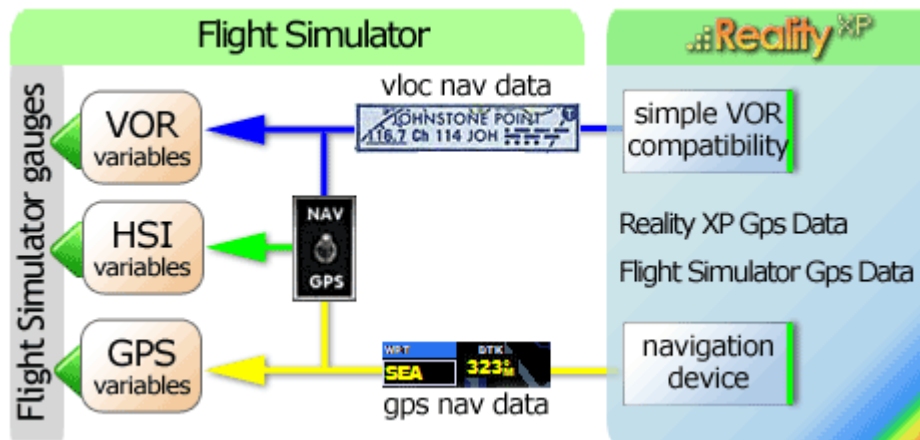
Navigation Device: selects the active GPS data source. The selection is made from the Options menu and/or the Device Select Switch Gauge included in the product. The Default FS GPS source is always available.

Simple Vor Compatibility: some VOR gauges working with the VOR variables require this option to be checked to display the information from the Reality XP GPS source.

The following guidelines cover most of the situations:

- Advanced EHSI displaying nav data sources simultaneously (VOR + GPS) should run with Simple Vor "off".
- General and regular VOR, should run with Simple Vor "On" for having the VOR CDI displaying the correct information.

Autopilot and GPSS

In addition to selecting the navigation information source gauges display, the Navigation Device Menu selects the device driving the Autopilot Course to Steer (CTS) when armed in NAV mode.

EADI, description and operations
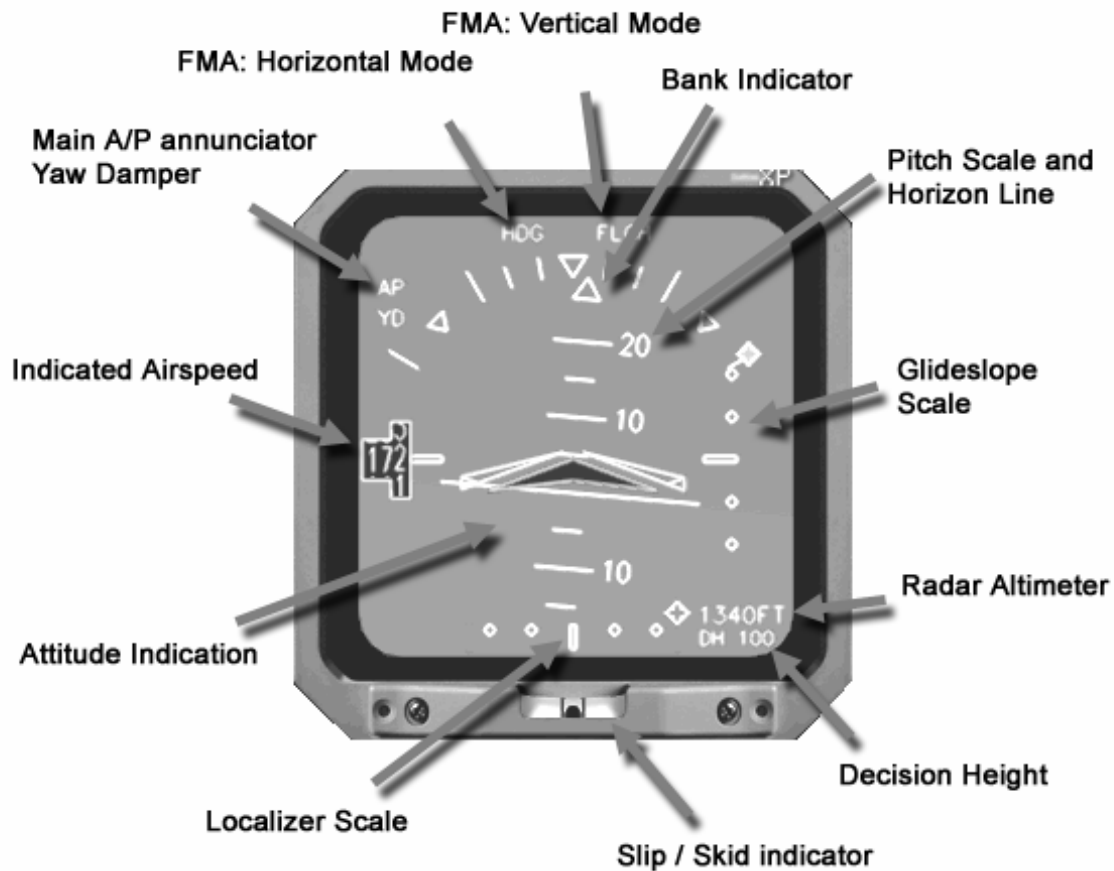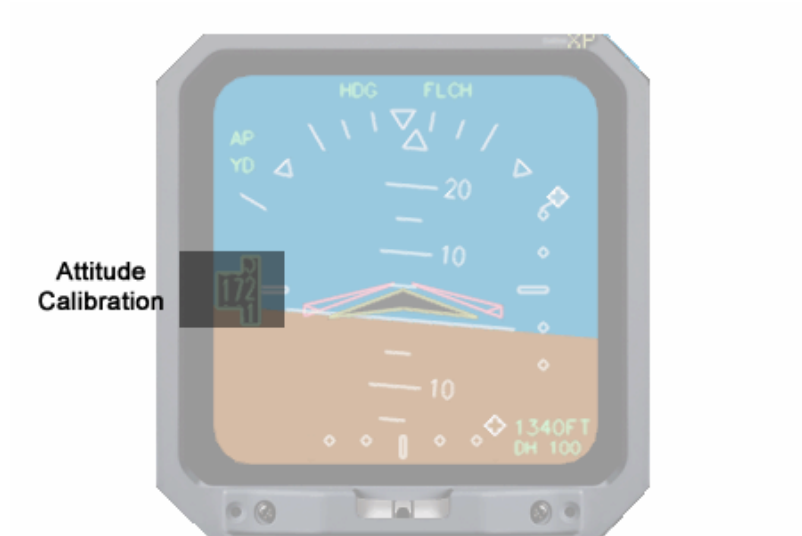

EADI Indications Overview

General Information

The Jet Line 2 EADI is a full featured modern EFIS display which replaces any default attitude indicator. In addition to basic attitude information, the EADI provides information about the autopilot modes of operation as well as ILS information. A redundant KIAS indicator is also conveniently added to the left of the display.

Knobs and Mouse Interface

The Jet Line 2 EADI provides click spots to control its functions.

Attitude Calibration: adjusts the horizon line to match the 0° pitch indication.

Navigation Display, description and operations
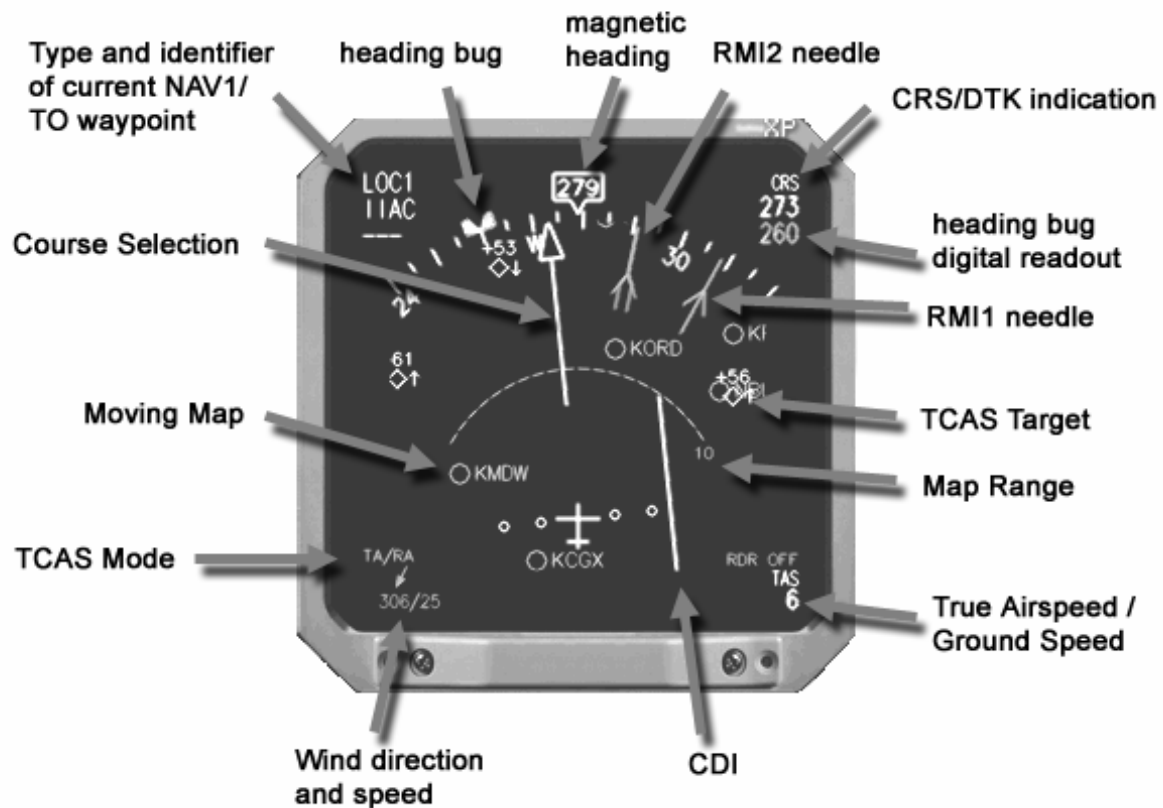
EFIS Indications Overview in ARC mode

General Information

The Jet Line 2 EFIS provides navigational information including a base map of airports and navigational facilities along with a TCAS display. Its conventional ARC and ROSE modes suit any phase of the flight.

Knobs and Mouse Interface

The Jet Line 2 EFIS provides click spots to control its functions.

CRS Adjust: adjust the CRS selector
HDG Adjust: adjust the heading bug

TCAS (Traffic Collision Avoidance System)

The Jet Line Avionics features a TCAS (Traffic Collision Avoidance System). Based upon the specifications of the TCAS II Software Rev. 6.x to warn the pilot of any airborne Flight Simulator AI Aircraft, it can provide both Traffic Advisories and Resolution Advisories (TA/RA).

The TCAS Computer performs airspace surveillance around your aircraft tracking intruder aircraft that violate your airspace along with threat detection. Determination and selection of aural advisories are generated. If a "traffic" threat condition occurs. The TCAS Computer uses pressure altitude, radar altitude, and discrete aircraft status inputs from its own aircraft to control the collision avoidance logic parameters. This determines the protection volume around your aircraft If a tracked aircraft is a potential collision threat, the processor selects an avoidance maneuver that will provide adequate vertical separation from the intruder while minimizing the excursions to the existing flight path.

NOTE

The tracked aircrafts are displayed on the EFIS screen when the TCAS is set to TA Only or TA/RA mode.

Non Intruding Traffic Altitude Unknown Open Diamond in White or Cyan

Traffic Advisory (Intruder). 700 Feet above and level. Solid Amber Circle.

Proximity Traffic, 200 Feet Below and Descending. Solid Diamond in White or Cyan.

Resolution Advisory (Threat). 100 Feet Below and Climbing. Solid Red Square

TCAS II Standard Symbols

TCAS Operation in Multi Player

The Jet Line Avionics automatically monitors and tracks AI traffic while you are flying. Due to Flight Simulator limitations in multi-player mode, the TCAS TA/RA is disabled and the Navigation Display provides only non-intruding and proximity traffic functions.

RTU, description and operations
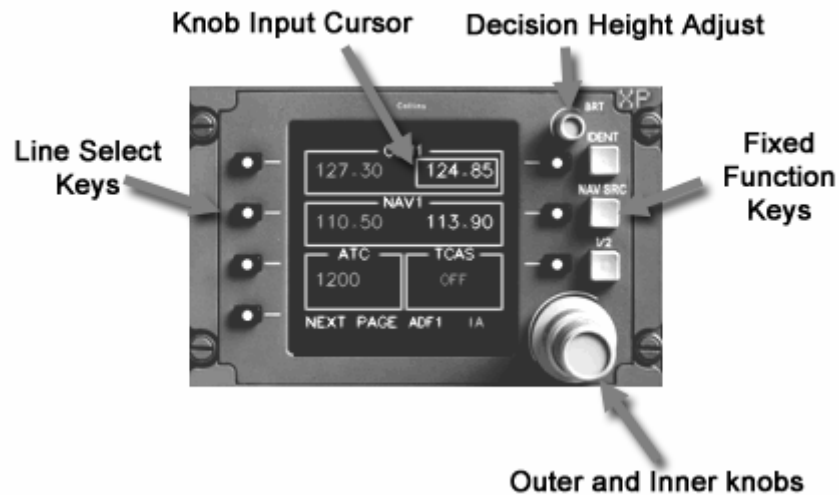
RTU Indications Overview

General Information

The Jet Line 4 RTU serves two main functions: it is a Radio Tuning Unit for the selection of communications and navigation frequencies, as well as an integrated EFIS Control Panel to manage the various avionics.

The RTU maintains color consistency between the fields and the pages. Here is the description of the various colors and their meaning:

- **Green Indication**: value in use, selected mode
- **White Indication**: value in standby, non active mode
- **White rectangle**: knob input cursor (the values that are affected / changed with the knob)
- **Blue indication**: flags and special purpose

Knobs - click spots

Available pages

The RTU provides four different screens:

Page 1

Page 2

Page 3

Page 4

Radios (page 1)

This page provides controls for adjusting the COM and NAV frequencies, selecting the Transponder code, and selecting the TCAS mode. In addition, the currently decoded ADF frequency is displayed as a reference.

Frequency selection

To change a frequency, first select the COM or NAV field with the corresponding Line Select Keys (**LSK**) on the right. The input field will change accordingly (white rectangle). The cursor always indicates the input values. The Outer knob changes the frequency to the left of the decimal point and the Inner knob changes the frequency to the right of the decimal point. When the standby frequency is set (white value to the right), press the corresponding Left Line Select Key to flip-flop the active and the standby frequencies.

The Fixed Function Key labeled "1/2" toggles the display between the COM1/NAV1 and COM2/NAV2.

NB: some Flight Simulator aircrafts requires a modification to their aircraft.cfg file for the standby frequency selection to be available.

Transponder Code Selection

The Transponder code is input using the third left LSK. Pressing the third left LSK at anytime cancels the input selection and reverts to the previously entered transponder code.

When in edit mode, the currently edited digit is highlighted in green. The Outer knob moves the cursor to the left or the right, the Inner knob changes the value.

To complete the entry of a new code, simply turn the Outer Knob past the fourth transponder digit.

TCAS mode selection

The third right LSK is used to toggle the TCAS modes:

- OFF: the TCAS is not monitoring any aircraft.
- TA Only: the TCAS monitors for any traffic conflicts but does not issue any resolution advisories.
- TA/RA: the TCAS monitors for any traffic conflicts and issue resolution advisories as required.

ADF Frequency Selection

With the help of the topmost RTU hard key labeled IDENT, you can swap the TCAS/ADF1 field. When the ADF1 box is in the third row, the ADF decoded ICAO is not displayed and the ADF frequency can be changed:

- Press the third right soft key to activate the cursor in the ADF field.
- Turn the inner knob to change the digits values.
- Turn the outer knob to cycle to the next editable digits.

The ADF frequency is directly set and the RTU does not provide any cancel feature as found with XPDR selection for example.

Audio Panel (page 2)

This page controls the audio panel so that you can select what radios and navigation aids that you wish to monitor. Use the corresponding LSKs to toggle the audio On and OFF as required.

EFIS Panel (page 3)

This page provides controls for adjusting the various EFIS map modes.

Airport information

The first line is related to the display of the airports in the EFIS map. The first left LSK is used to toggle the available display modes:

- **APT OFF**: no airport symbol is displayed on the map
- **APT**: airport symbols are displayed on the map
- **APT + ID**: airport symbols and their ICAO ID's are displayed on the map. At a certain map range, the ICAO ID's are not displayed in order to declutter the display.

The first right LSK is used to activate the Airport Map Filter function. When set, the map only displays the airports that fit the user selected filter settings in the configuration file (see below for more details on this function)

VOR and Intersections

These are set in a similar fashion to the airport information settings.

Flight Plan Information

The EHSI will display the currently loaded Flight Plan in the Flight Simulator flight planner.

If you are also using the Reality XP Flight Line Apollo, Garmin GPS or any other Reality XP navigation device, their active route is automatically uploaded to the Jet Line 4 EFIS with no further user action than selecting the navigation source of interest (notes below).

The third left LSK toggles the Flight Plan route display On and OFF.

The third right LSK cycle the available LNAV sources. This is equivalent to using the Navigation Device options menu to select the current Navigation Data Source.

EFIS Panel 2 (page 4)

This page provides controls additional EFIS related modes that are accessible with click spots on the Jet Line Avionics bezels.

RMI Sources
Press the corresponding LSK to toggle through the available RMI sources – a left and right selection is available.

EHSI
The left LSK toggles between ARC and ROSE display modes. The right value is the range in nautical miles. It is selected by using the corresponding LSK and the values are controlled with the Inner knob

Miscellaneous
The left LSK controls the Flight Simulator NAV1/GPS switch for selecting the autopilot navigation source. The right LSK toggles the display of the CDI – either On or OFF.

Navigation Source Selection

Use the The Jet Line Avionics RTU to select the navigation source which drives the CDI. This function is controlled with the NAV SRC key. The supported sources are either VLOC or LNAV (GPS).

- **VLOC**: the tuned nav1 station controls the CDI. The CRS selection functions as an OBI selector on a VOR
- **LNAV**: the Navigation Data source selected in the Options Menu is used as the navigation source. When a flight plan is activated, the EADI displays additional navigation information such as distance to destination and time to destination

When an active TO waypoint is detected and the CDI source is a GPS, the CRS is automatically set to AUTO CRS and adjusts to the DTK (Desired Track)

Product Support

You should read this manual, and the others included with this product from cover to cover before asking for support or help with this product. We have found that over 95% of all product support questions can be answered by reading the manual.

You can visit the Reality XP General Forum for general customer service issues.at:

<div align="center">

http://www.reality-xp.com/community/users.htm

</div>

While anyone may read this support forum, you will need to register in order to post a question or reply with an answer. Support at this forum may be provided by any one of the following individuals:

1. Members of the Development / Publishing Team.
2. Members of the product's beta testing team.
3. Knowledgeable users of the product who know the correct answer.

If you still require help: Product support is available through our online help system. Please visit http://www.reality-xp.com for additional support information.

Thank you.