BG Systems
Joystick Control Box

FlyBox

Overview

The FlyBox is a high quality integrated joystick input device for your computer It consists of a three axis joystick (pitch, roll, and yaw), two levers, eight discrete push buttons, and a trigger on the joystick. The FlyBox provides inputs to the computer through the serial port, and can be used instead of the mouse for:

- Vehicle simulations - flight, driving, tank etc.
- Database modeling - more intuitive feel.
- Three D modeling - easier to move in three dimensions with a three dimensional device.
- Architectural walk through

The FlyBox is packaged in a sturdy aluminum case. Connection to the computer is with an RS-232 serial cable so you can be working within minutes. The combination of rugged construction and portability make the FlyBox the ideal tool for trade shows, and provide numerous advantages over systems that require installation of a board into the workstation:

- No need to rebuild the operating system to include a special device driver.
- No need to open the computer to install an Analog to Digital board since the A/D conversion is handled internally by the FlyBox.

Third Party Supoort

The FlyBox has proven to be a popular input device for high-end workstations, particularly for applications involved in the distributed interactive simulation (DIS) program. The following is a partial list of companies and their software packages that provide support for the FlyBox:

Company	Software Package
CAE Electronics	ITEMS
Cambridge Research	PowerScene
M K T echnologies	Dial-a-Tank
Muse Technologies	Muse
Naval Postgraduate School	NPSNET
Paradigm Simulation	Vega
Virtual Prototypes	FLSIM

Technical Specifications

Joystick, Levers, & Switches
The standard FlyBox (BG-530) comes with a BG Systems' JF3 three-axis joystick which provides proportional analog outputs for pitch, roll, and yaw A 2-axis version (BG-520) is also available.

The joystick generates electrical output from a Hall Effect sensor for each axis, which provides better performance and reliability than potentiometric systems. To small levers are mounted on the left side of the case, and these are suitable for throttles, trim levers, etc. The analog signals are all converted to digital with 12 bit resolution.

There are six latching and two momentary push buttons, which are backlit when depressed, and a trigger switch on the joystick. The configuration of latching and momentary push buttons can be customized for special orders.

Communications Protocol
RS-232 serial protocol without hardware handshaking, supported by most operating systems.

Software Interface
Source code, written in C, is provided on 4mm DAT and includes all functions needed to configure and sample the FlyBox. The software is fully compatible with BG Systems CerealBox which allows actual vehicle controls to be connected to the CerealBox as a direct replacement for a FlyBox.

Platforms Supported
The FlyBox has been tested on several Unix workstations (SGI, Sun, DEC, Harris), Macintosh, and IBM PC computers. Consult BG Systems if you have a platform not listed.

Update Rates
Depending on the baud rate, update rates between 30-100 Hz can be achieved.

Baud Rate Supported
The FlyBox can run at baud rates between 2400 and 115200 bps.

Power Requirements
Power can be switched between 110 and 220 volts.

External Inputs
Three DB-9 connectors on the back of the case allow three additional analog inputs. A fourth DB-9 allows eight additional discrete inputs. Pin 8 on the analog connectors carries 5 vDC which can be used to power external devices. External input voltages must be between 0-5 volts.

Dimensions
The dimensions of the case are 14" x 11" x 5", and the joystick adds an additional 7" to the height of the FlyBox.

Options
Several optional configurations are available for the FlyBox. Options include a two-axis joystick (BG-520), and a variety of pushbuttons that are thumb actuated. See the JFx™ Joystick data sheet for a full list of options.

Cables and Connections
The FlyBox is connected to the computer with a 25 foot cable. The standard serial cable provided is a PC-DB-9 "null-modem" cablle. MiniDIN-8 and SGI Onyx DB-9 cables can be ordered. Cables up to 500 feet have been tested.

Warranty
Twelve months.

Contact Information

株式会社リアルビズ
〒101-0042
東京都千代田区神田東松下町35番地
第2アキヤマビル3階

Tel.03-5207-6862（代表）
Fax.03-5207-6865
E-mail:information@realviz.co.jp
Web:http://www.realviz.co.jp

&:G BG Systems, Inc. Palo Alto, California 94306, USA
www .bgsystems .com

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The Realtime Visualization Company