FDS-FC1 Module

Rev 2.00

Proprietary Statement

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FDS-FC1 Module

General Information

The FDS-FC1 is a flight control input board emulating a standard Windows joystick. The FDS-FC1 has eight (8) axes, thirty two (32) buttons and an eight (8) position hat. All of the eight (8) axes are 10 bit resolution.

Board Layout

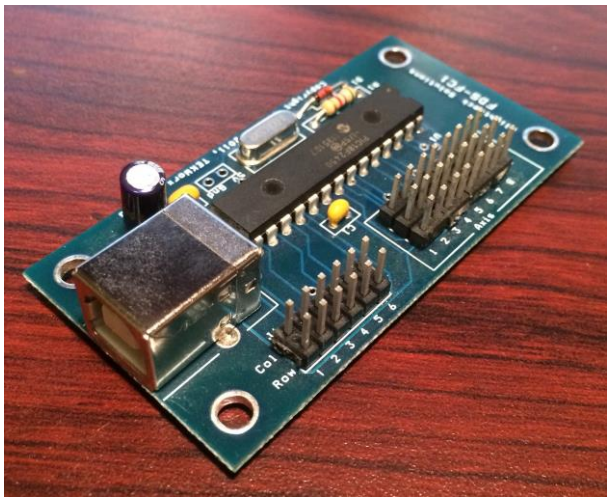

Figure 1

Connectors

There are two connectors on the FDS-FC, one for buttons / hat and one for axis.

Axis Connector:

Gnd	Gnd	Gnd	Gnd	Gnd	Gnd	Gnd	Gnd
Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6	Axis 7	Axis 8
5v	5v	5v	5v	5v	5v	5v	5v

Button Connector:

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Row 1	Row 2	Row 3	Row 4	Row 5	Row 6

Axis Layout

The following table shows the assignment of each axis. Note that if there is no device connected to the input of an Axis, on power up, the controller will disable that axis and it will not show up on the host computer.

Axis	Assignment
1	X Axis
2	Y Axis
3	Z Axis
4	X Rotation
5	Y Rotation
6	Z Rotation
7	Dial
8	Slider

Windows Gaming Controllers

The FDS-FC1 will show up like any other joystick that you may have connected to your system. If 8 axes or 32 inputs buttons are not enough you can connect multiple FDS-FC1 cards to your system, however at the time of writing Microsoft Windows is only able to access sixteen (16) controller. The standard display and calibration applies to the FDS-FC1.

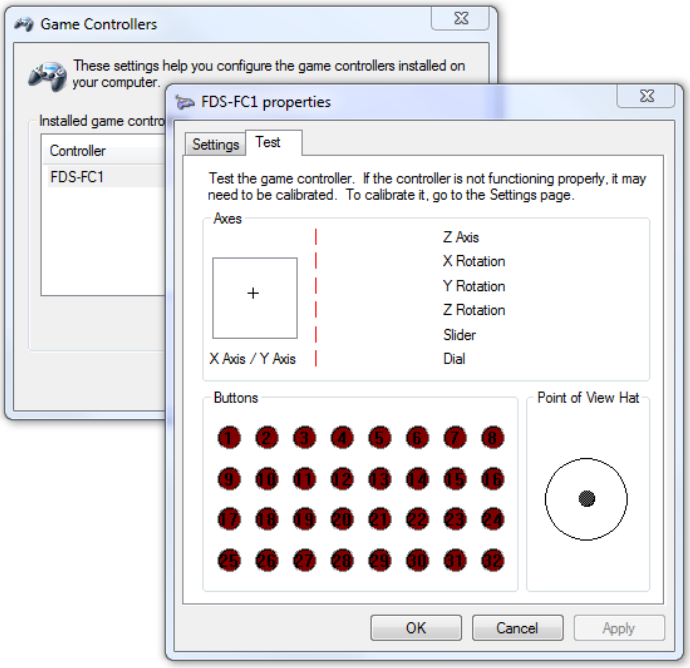

Figure 2

Connections

USB

Connection to computer is done via a standard USB B type connector, located at the edge of the FDS-FC1 card.

Axis

In order for an axis to be enabled and show up to Windows it must be connected before the FDS-FC1 is connected to the USB bus. Any pot with a value of 10K thru 100K can be used; however the recommended pot value is 50K. When connecting the pot, connect pin1 to ground, pin 2 to the axis input and pin 3 to +5v.

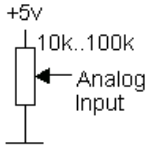

Figure 3

Buttons / HAT

The FDS-FC1 is able to handle 32 button inputs as well as an eight (8) position hat control (up, down, left, right, upper left, upper right, lower left, lower right). When connecting the switches to the input matrix you will need to use a diode to prevent phantom keys from being seen during the scanning of the matrix. Any signal diode will be sufficient (e.g.: 1N4001 or 1N4148).

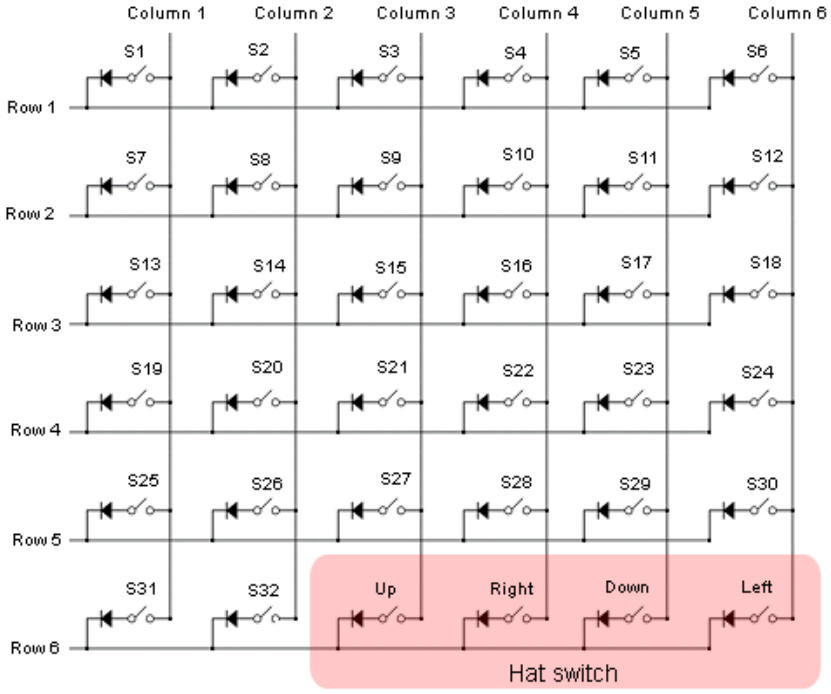

Figure 4

Specifications

USB Compliance:	2.0
USB Transfer rate:	12Mbit/s
Current Requirement:	100ma
Polling Frames:	8
Response Time, Active Mode:	16ms[1]
Ambient temperature under bias:	-40°C to +85°C
Storage temperature:	-65°C to +150°C

[1]Response time is the time from joystick movement to when new axis position data is available for the host computer. Physical response times will vary depending on the load on the host machine and its ability to read the USB device as well as the amount of traffic on the bus that the device is connected to.


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