Attachment

User's Manual

ORION 90 USB JOYSTICK

(Analog Joystick with four-way view key control)

SPECIFICATIONS

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QTRONIX®

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WARNING

Note : This equipment has been tested and found to comply with the limits for a Class B device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However , there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver in connected.
- Consult the dealer or an experienced radio / TV technician for technician for help.

Notice:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

I SCOPE

The purpose of this specification is to define the generic operational, Environmental, electrical and mechanical characteristics of the "ORION 90 USB JOYSTICK".

II GENERAL

Description

This very advanced Joystick is a must for the serious game and flight simulator user. Going far beyond the simple controls of a mouse or keyboard. this analog Joystick incorporates 4 fire buttons and a dynamic four-way view controller which allows you to look around from inside your aircraft.

With the Orion 90 USB you will soon be cruising the skies, conquering villains and Racking up unbeatable scores.

The ORION 90 USB Joystick is truly one of the finest IBM game controllers available. With the ORION 90 USB Joystick you can now open up the excitement for your computer games with realistic interaction. It has designed with analog technical for the Joystick., you are sure to become a real master of any game application.

The interface connection consists of a USB-A PLUG Connect or that is used for USB port.

Package Contents

- ORION 90 USB Joystick.
- User's Manual.

System Requirements:

Conforms to USB 1.5Mbps Specification Version 1.0 .
Conforms to USB HID Specification Version 1.0 .

Performance Features

- Compatible with IBM PC USB port Plug & play function
- Precision analog design for best accuracy
- Dynamic four-way view control
- 4 fire buttons in easy-to-access locations put more fire power tips
- smooth contoured stick for reduced combat fatigue
- Rotary X &Y axis trim controls
- Full grip, ergonomically designed handle
- Advance micro-switch technology
- Automatic centering
- Sturdy no-skid stabilizing suction cups
- Attractive black design with vibrat button colors
- USB-A plug connector
- Button switch life time of one million cycles
- Total Current :Less than 50mA

Joystick button Definition

Fire Buttons

Your joystick contains four fire buttons ; A,B,C&D .The function of each button is dependent on the particular game application you are using . In many applications, not all buttons will have a designated function and will not be used:

Ire button A is the trigger button at the front of the joystick handle. This is most commonly used as a weapons fire button.

Fire buttons B, C & D have varying functions, dependent on the game Application you are using. Consult your game's software user's manual for proper use of their functions.

Four-way View Control

Just above the center fore button at the top of the joystick is the view control Button. This button allows you to adjust the view direction in certain Applications that support this feature. The effect is similar to a pilot turning his Head while flying a plane.

X&Y Axis Controls

At the front and to the right of the joystick handle are rotary wheels for fine tuning X and Y axis. These allow for proper tuning of your joystick within a particular application. For proper adjustment, refer to your software application's user's manual

Throttle Control

To the left of the joystick handle is the throttle control. This throttle control is for use with advanced applications such as Microsoft's Flight Simulator ™ 4.0 or F15 strike Eagle ® III Before starting applications that utilize this function, rotate this wheel towards you until it stops . then, within the application, rotating the throttle forward, away from you, increases the throttle. Rotating backwards, towards you, reduces the throttle. This control will not function in all applications ,user's manual for further instructions.

Ⅲ ENVIRONMENTAL SPECIFICATIONS

Temperature

Operating

The operating temperature range shall be from 0℃ to 50℃. There shall be An operational temperature test of a single cycle, ambient, cold, hot, ambient, With a minimum of a 15 minute dwell (pause) for every 15℃ increment of change. The rate of temperature change shall not exceed 20℃ per hour. The Joystick will operate normally throughout the cycle requiring no operator Intervention or corrective actions, except to cause normal movement.

Non-Operating

The non-operating temperature range shall be from-10℃ to 60℃. here Shall be a thermal shock test of five(5) cycles from-15℃ to 55℃ holding for 30 minutes at each extreme. The rate of temperature change shall not exceed 25℃ per hour. Normal Joystick operation will be verified before and after the thermal shock text.

Humidity

Operating

The operating relative humidity range shall be from10% to 85% non condensing ambient temperature..

Non-Operating

The non-operating relative humidity range shall be from 10% to 85% non Condensing. The Joystick shall withstand an environment varying between 25℃ and 55℃, 85% relative humidity, non condensing, for a period of 96 hours.

Shock Test

Operating

With the system installed on a shock platform and operating the test software, a shock pulse of 5 G half sine for a duration of 15 ms shall be exerted on each of the 3 orthogonal axes. The test shall be repeated 3 times for the vertical axes only.

Non-operating

With the system installed on a shock platform and switched OFF, a pulse of 10 G half sine for a duration of 15 ms shall be exerted on each of the 3 orthogonal axes. The test shall be repeated 5 time.

Vibration text (packaged for shipment)

Operating

With the system installed on a vibration platform and operating the test software, a vibration with a displacement of 0.02" shall be exerted over the frequency range of 5 Hz to 22 Hz and an acceleration of 0.5 g over the frequency range of 22Hz on each of the three axes. This shall be sustained for approximately 13 minutes per axis only.

Non-operating

With the system installed on a vibration platform and switched OFF, a vibration with a displacement of 0.1" shall be exerted over the frequency range of 5 Hz to 22 Hz and an acceleration of 0.75 g over the frequency range of 22 Hz on each of the three orthogonal axes. This test shall be sustained for approximately 13 minutes per axis.

Contaminants

Dust

The Joystick shall be unaffected by the normal accumulation of airborne dust as found in the home or office place. This includes non-metallic dust and grime as mighty be carried into the work place or home from outside sources. Routine cleaning of necessary mechanical components is facilitated through easy access to those mechanical components.

Gases

The Joystick shall not be corroded or defaced or otherwise damaged by atmospheres acceptable to OSHA standards for the home and work place. This includes normal amounts of oxygen and ozone.

Ⅳ MECHANICAL SPECIFICATIONS

Materials

General

Joystick Bases, Cover and Keytop : Injection molded ABS Thermoplastic rates UL 94 HB.

PC Board : Paper Phenolic. Rated UL-94V0.

Interconnect Cable

Jacket :Low durometer PVC, 2.5mm to 4.1 mm nomial diameter.

Shield :Braided shield with 90% coverage ± 5%.

Conductor Insulation :PVC.

Pull Test :Cable shall be permanently secured to Joystick housing and connector shell . Both shall withstand a 3kg force applice parallel to cord Entry plane for ten (10) seconds.

Standard Connector

USB- A plug connector

Connector Shell :Shielded, plastic plated , with metallic contact dimples

Insulator : Thermoplastic.

Contacts : Tin flash plated with a minimum of 15 micro-inches in contact area.

Flex and Strain Relief: PVC.

Backshell :Molded PVC.

Switch

Type: Momentary with tactile and audible feedback

Pre-travel :0.25-1.30 mm.

Hysteresis :0.04-0.18mm.

Contact Bounce :Switch shall have electronically debounced contacts.

Actuation force :28-114gm.

Electromechanical Life :One million cycles at 3 cycles / second with a vertical actuation force of 114 gm.

Weight

The weight of the ORION USB Joystick should be 360 grams bare.

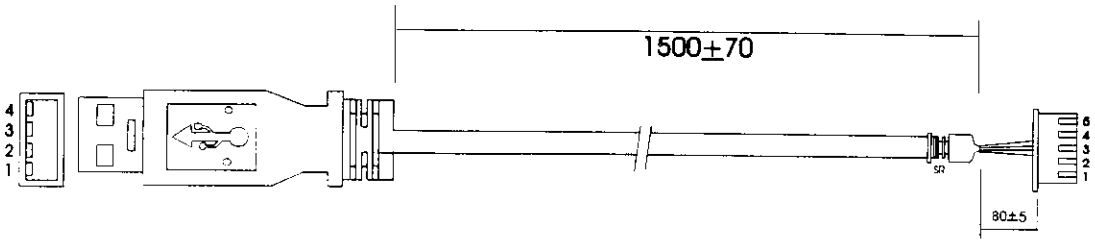
Mechanical Life

Mechanical life, as measured in distance, shall be 160 KM at 20cm/sec with a vertical pressure of 150gm

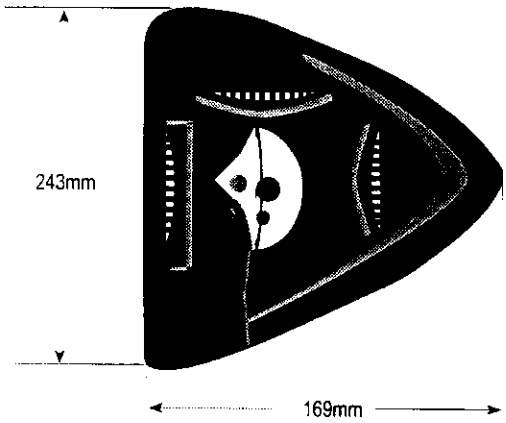
Workmanship

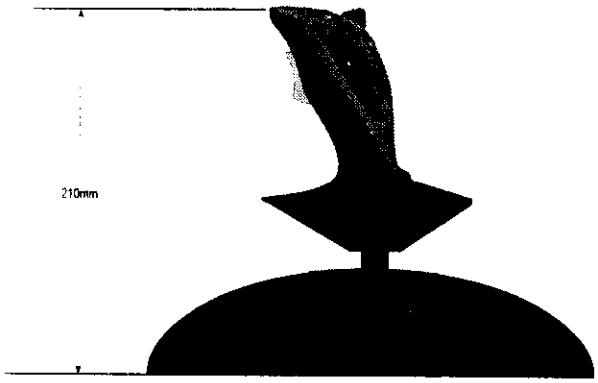
The Joystick shall be uniform in workmanship and appearance. There shall be no nicks, scratches, burrs or defects in material that may affect the function, servicability or appearance of the Joystick.

Cable Specification



Physical Dimensions





V ELECTRICAL SPECIFICATIONS

Components

All component will be of the highest commercial grade and shall be mounted according to IPC and recommended vendor practices. Standard values are to be adhered to at all times . Single sources, unusual values or designs outside specified component ratings shall be avoided.

PC Boards

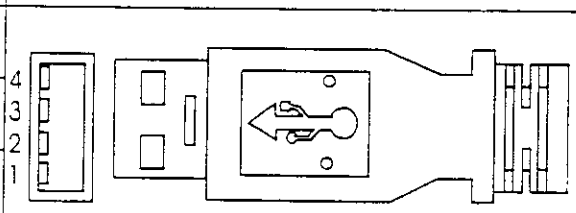
PC Board shall be made of UL (Underwriters Laboratories) rated material, 94V-0 or better as per UL 478.

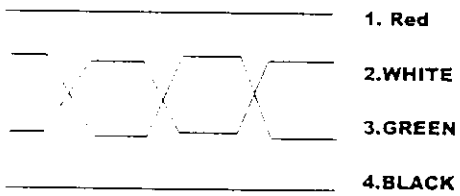
Design Practice.

All components shall perform well within their design ratings. Good IC design with respect to unused inputs and number of outputs shall be observed. Trace width and spacing shall be conservative wherever possible and shall meet IPC minimums at all times. Bypass capacitors shall be used liberally and some on-board filtering is expected when possible . Power consumption shall be minimized.

Connector Pin Assignments

The USB-A Plug connector pin out is as follows :

PIN	SIGNAL	CONNECTOR
1	+5VDC	
2	DATA -	
3	DATA +	
4	GND	



1. Red
2.WHITE
3.GREEN
4.BLACK

WIRING DIAGRAM

VI **SCHEMATIC**

The Schematic of the ORION USB JOYSTICK is as follows: