LYNX 99 3D MOUSE
SPECIFICATIONS

FCC ID:F2Q4NE993D

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 part 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.

SCOPE

The purpose of this specification is to define the generic operational, Environmental, electrical and mechanical characteristics of the "LYNX 99 / 3D PM Net MOUSE ".

GENERAL

Description

The LYNX 99/3D *PM Net* MOUSE is designed for use with the IBM PC/AT, PS/2 and compatible computers. There are 400 dot per inch (DPI) Or 0.015 mm/count opto-mechanical mouse. A built in micro processor, Uses multiple rotary optical encoders and a rubber coated ball to detect mouse movements . count signals are sent to the host computer where they are translated into motion of the display screen cursor . Multiple interface protocols are provided as follows.

Three Buttons / Three buttons with wheel

The interface connection consists of nine (9) pin D-SUB connector that is used for RS-232C serial output of Microsoft protocol.

The interface connection consists of six (6) pin Mini DIN adapter that is used for

IBM PS/2 Pointing Device Port (PDP) protocol.

Appearance / Durability

This product is intended for user used in home and office environments. Therefore , the quality of appearance and touch are of great importance. Because of the environmental severity of the home and office place, longevity, durability, durability and resistance to contamination are also of major concern. Good engineering design practices shall be followed throughout, both mechanically and electrically.

The Lynx 99 / 3D PM Net model have three buttons, and 3D has one wheel which emulate the two buttons of a Microsoft mouse or PS/2 Mouse, and the side button is the toggle switch for normal mouse middle button under some application wheel is for the scrolling function

Performance specifications

Compatible with IBM PC XT ,AT PS/2
Hardware Resolution : 400dpi
Tracking Speed : 500mm / sec
Encoder : Opto-Mechanical
Switch : 1 Million Cycle Life
Total Current : Less than 8mA
Boud Rate : 1200bps

ENVIRONMENTAL SPECIFICATIONS

Temperature

Operating

The operating temperature range shall be from 0 to 70 . There shall be an operational temperature test of a single cycle, ambient, cold, hot, ambient, and 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-65 to 150 . There 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 mouse 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 mouse shall withstand an environment varying between 25 and 55 , 85% relative humidity, non condensing, for a period of 96 hours.

Vibration Test *(Packaged for shipment)*

Non-operating

1. 5 to 31 Hz 0.38 mm peak to peak
 displacement : Continuous logarithmic rates of 0.5 octave / minute back and forth.
2. 32 to 500 Hz:0.75 G force limitation:
Continuous logarithmic rates of 0.5 octave / minute back and forth.

3. 5 to 500 Hz Random vibrations: 0.01G2/ Hz for 30 minutes :
Continuous logarithmic rates of 0.5 octave / minute back and forth

Shock Test

Non-operating

The mouse shall withstand a shock equal to 20G forces, half sine wave for 11 msec duration in all three (3) orthogonal axes.

Drop Test

Drop the mouse from 75+2cm height above a wood board 15mm thick placed on a concrete floor, 3 times in the same direction.

Related Documents

FCC

The mouse shall meet the requirements of FCC Part 15 for Class B Computing Devices.

Contaminants

Dust

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

MECHANICAL SPECIFICATIONS

Materials

General

Mouse Base, Cover and Keytop: Injection molded ABS Thermoplastic rates UL 94HB.
PC Board: Paper Phenolic. Rated UL-94V0
Switch Housing: Termoplastic

Interconnect Cable

Jacket: Low durometer PVC, 2.5 mm to 4.1 mm nominal diameter.
Conductor Insulation: PVC
Pull Test:
Cable shall be permanently secured to mouse housing and connector shell. Both shall withstand a 3kg force applice parallel to cord entry plane for ten (10) seconds.

Standard Connector

D-SUB 9 PIN or Mini-DIN 6 PIN, with one 6 pin –to-9pin adapter Mini-DIN 4 PIN connector
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
Contact Configuration: SPST
Pre-travel: 0.25 - 1.30 mm
Hysteresis: 0.04 - 0.18 mm
Contact Bounce: Switch shall have electronically debounced contacts
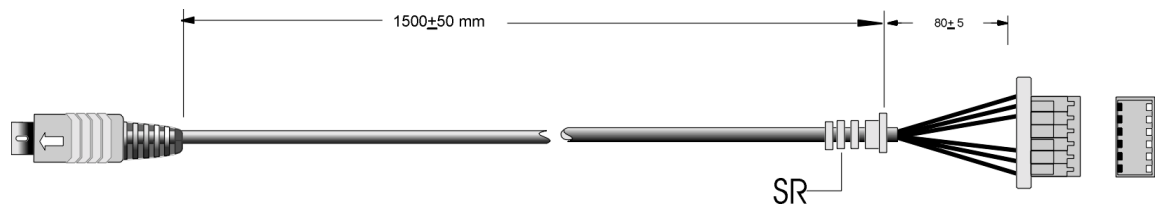Actuation Force: 28 - 114 gm
Electromechanical Life:
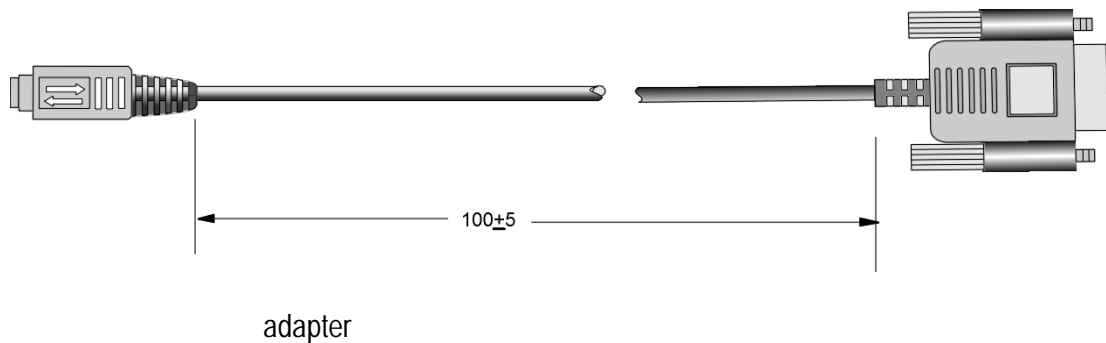One million cycles at 3 cycles/second with a vertical actuation force of 114 gm

Weight
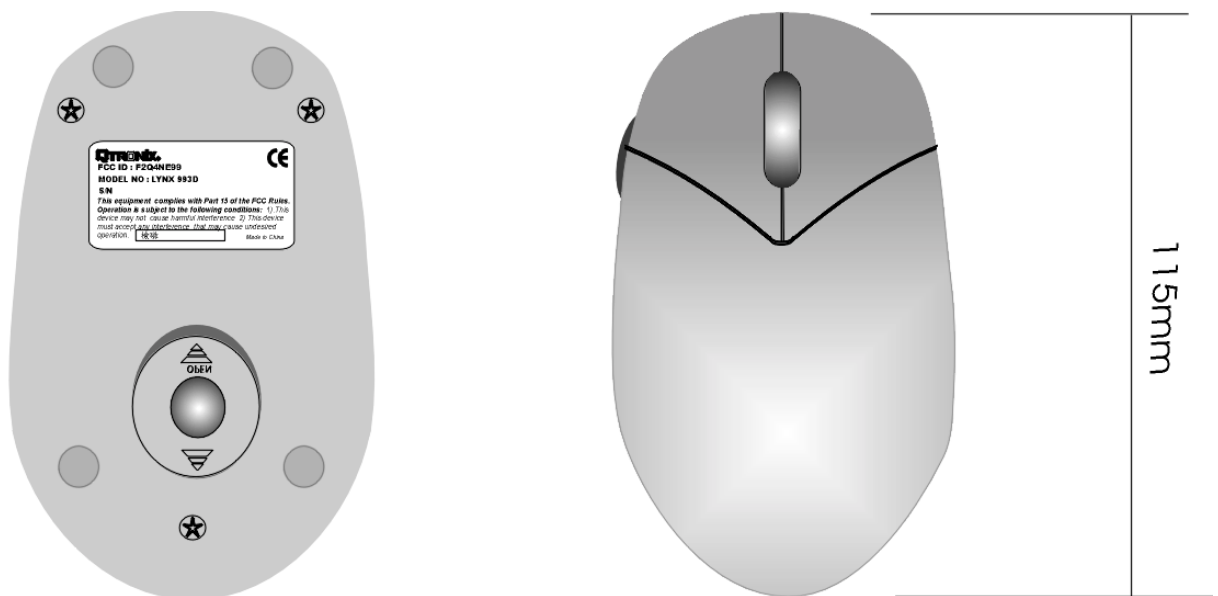The weight of the mouse should be 160 grams.

Cable Specification

Cables Specification for Lynx99 3D PS/2

adapter

Physical Dimensions

Cleaning your Mouse

After time and use, your mouse may require that you clean the mechanism for continued smooth tracking. Your mouse has a special feature that allows you to remove the ball for cleaning of it and the rollers. To do so , please follow these simple procedures:

Turn off your computer first.

With your fingers , press down on the ring that surrounds the ball of   your mouse bottom.

Once you have press down the ring ,remove it and the ball from the trackball housing.

Now, tale a cotton swab or other clean soft material and lightly soak it in a non-caustic cleaning solution(such as that for the cleaning of a stereo cassette tape head).

Gently clean the surface of the ball and the two black rollers besides the housing to remove any dust or lint that has built up over time.

After cleaning and allowing the surfaces to dry, replace the ball into the housing and secure the ring by pulling it up until tight. Turn on your computer.

Data Format

Microsoft format

BIT#	7	6	5	4	3	2	1	0
BYTE1E	1	1	L	R	Y7	Y6	X7	X6
BYTE2	0	0	X5	X4	X3	X2	X1	X0
BYTE3	0	0	Y5	Y4	Y3	Y2	Y1	Y0

Where: L= left Key Status   1=Pressed
                  R= Right Key Status   0=Released
                  X0-X7= X distance   LEFT= Released
                  Y0-Y7= Y distance

Data is shifted from byte 1 bit 0 to byte 3 bit 7 at the speed of 1200 Baud , no parity, 2 stop bit
Data is reported upon key status changed and x,y data change. No Change will not cause report.

PS/2 format

BIT#	7	6	5	4	3	2	1	0
BYTE1E	YV	XV	YS	XS	1	0	R	L
BYTE2	X7	X6	X5	X4	X3	X2	X1	X0
BYTE3	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0

Where : XS, YS = Sign Bit (1=Negative movement)
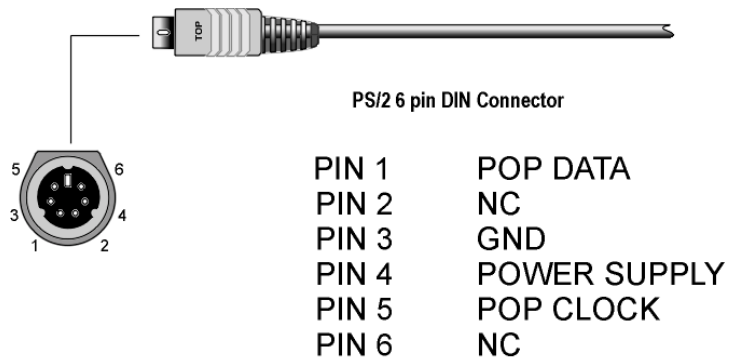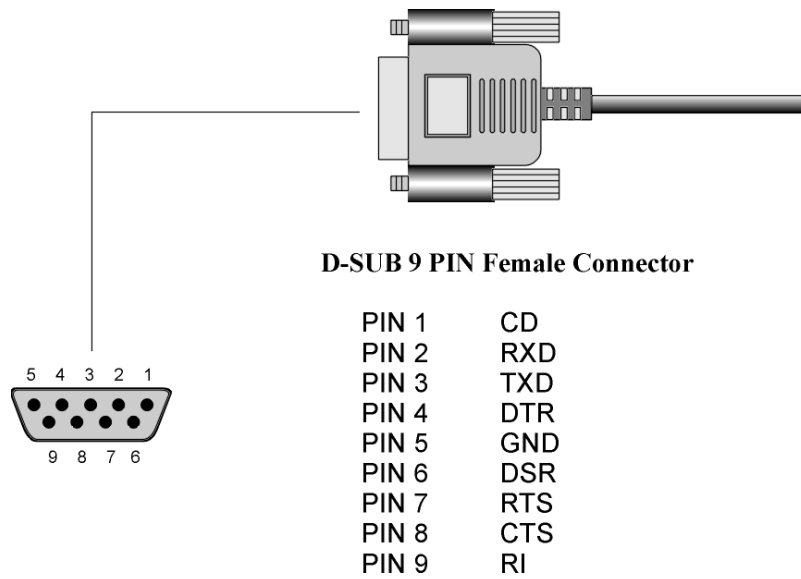XV,YV =Overflow Bit (1=Overflow it the XY data)
1= Pressed
0= Released
L= Left key status
R= right key status
X0-X7= X distance
Y0-Y7= Y distance

Connector Pin Assignments

D-SUB 9 PIN Female Connector

PIN 1	CD
PIN 2	RXD
PIN 3	TXD
PIN 4	DTR
PIN 5	GND
PIN 6	DSR
PIN 7	RTS
PIN 8	CTS
PIN 9	RI

PS/2 6 pin DIN Connector

PIN 1	POP DATA
PIN 2	NC
PIN 3	GND
PIN 4	POWER SUPPLY
PIN 5	POP CLOCK
PIN 6	NC

Schematic

The schematic of the mouse is as follow: