

HeadMouse® and HeadMouse for Portables

Getting Started and Installation Guide

Congratulations on your purchase of the HeadMouse or HeadMouse for Portables by Origin Instruments.

This document covers the basics for setting up and using the HeadMouse. For more detailed information please refer to the HeadMouse Manual. This document will describe how the HeadMouse is set-up and connected to your computer or Augmentative and Alternative Communication (AAC) device, and will provide options for attaching the target dot.

The HeadMouse is an optical tracking system and it must be installed so that the HeadMouse Sensor can see the target dot. This means that the HeadMouse Sensor should be positioned so that it has an unobstructed view of the target dot attached to your head. Generally, the optimum placement and orientation will have the HeadMouse and user looking directly at each other at a distance in the range of two to three feet — eyeball-to-“eyeball”. However, the HeadMouse does have a large 50° - 55° field-of-view and can easily track the target to four feet. You can tell whether the HeadMouse can see the target dot by the color of the “Status” light. When this light is green the HeadMouse Sensor can see the target and is tracking, when it’s red the target is obscured or out of the HeadMouse Sensor’s field-of-view. If the status light is yellow the target is either at the edge of the HeadMouse Sensor’s field-of-view or operating range.

This installation guide is brief and you should read the HeadMouse Manual for an in-depth discussion of the HeadMouse and its capabilities. The HeadMouse Manual also includes a special section with answers to commonly asked questions.

It is important to remember that the HeadMouse simply replaces an existing desktop mouse. The HeadMouse, like any desktop mouse, requires a mouse driver. Standard mouse drivers are included with the Macintosh operating system, Microsoft Windows and many Augmentative and Alternative Communication (AAC) devices. The driver is automatically installed if a mouse (standard desktop mouse or HeadMouse) is connected to the computer or AAC device at startup. If the HeadMouse will be used with MS-DOS, and a mouse driver hasn’t previously been installed for DOS please refer to your Windows ReadMe files under “Using Specific Mice with Windows Version 3.1”. Starting with the release of Windows 95, a mouse driver is automatically installed for DOS sessions.

Locate the installation instructions appropriate to your specific equipment on the following pages as described below.

I. Desktop HeadMouse Installation

II. HeadMouse for Portables Installation

III. Target Dot Placement

IV. Augmentative and Alternative Communication (AAC) Devices – Please refer to the HeadMouse Manual Appendices for detailed installation instructions specific to the AAC device.

I. Desktop HeadMouse Installation

1. Remove the HeadMouse from its box, taking care not to touch the two dark optical windows on the front panel. Place the HeadMouse on your computer display as illustrated in Figure 1. Position the HeadMouse so that the front panel is approximately even with the front of your computer monitor. Also, you should generally position and orient yourself and the HeadMouse so that you are looking directly at the HeadMouse — eyeball to “eyeball”.

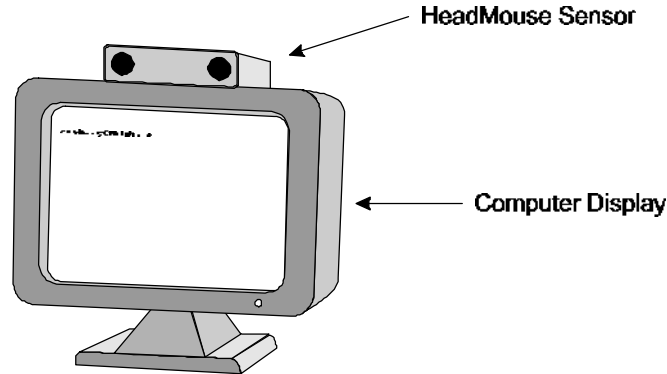


Figure 1. Desktop HeadMouse positioned on the computer monitor.

2. Plug the AC adapter into the appropriate AC mains wall socket. Then connect the AC adapter to the “PWR” connector on the HeadMouse. See wiring diagram in Figure 2.

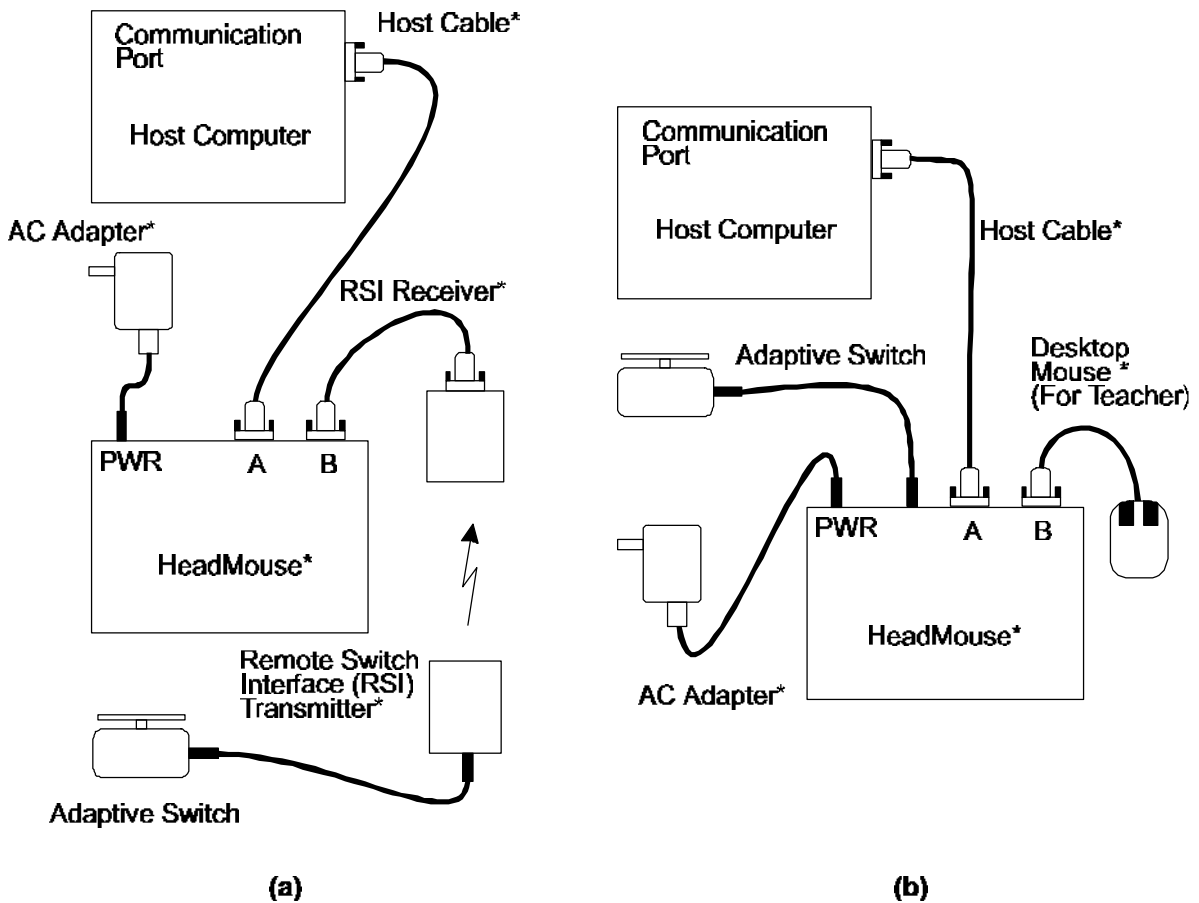


Figure 2. Wiring diagram for using the HeadMouse with the (a) Remote Switch Interface), or (b) in the Teach mode. (* - These items are supplied by or are available from Origin Instruments.)

- Using the HeadMouse interface cable (9-pin Serial, PS/2, ADB or USB), connect "PORT A" on the HeadMouse to the host computer port that is normally connected to your desktop mouse. Lightly fasten the cable thumbscrews. **Please note PS/2 devices should be connected to the host computer at boot time for proper initialization. If the PS/2 device is disconnected after initialization it may not function again until it is re-initialized.** See the wiring diagram in Figure 2 and illustration of the HeadMouse rear panel in Figure 3.

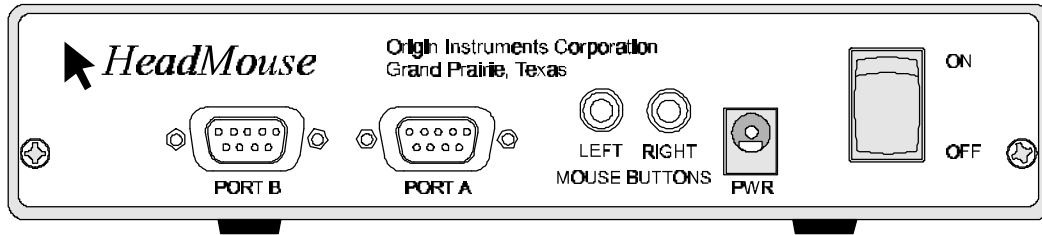


Figure 3. Illustration of HeadMouse Rear Panel.

- If you did not purchase the Remote Switch Interface (RSI) or if you wish to operate the HeadMouse in the Teach mode skip to step 8, otherwise continue with step 5.
- Connect the RSI Receiver, illustrated in Figure 4, to "PORT B" on the HeadMouse using the included 9-pin cable. Lightly fasten the cable, on both ends, using the thumbscrews.

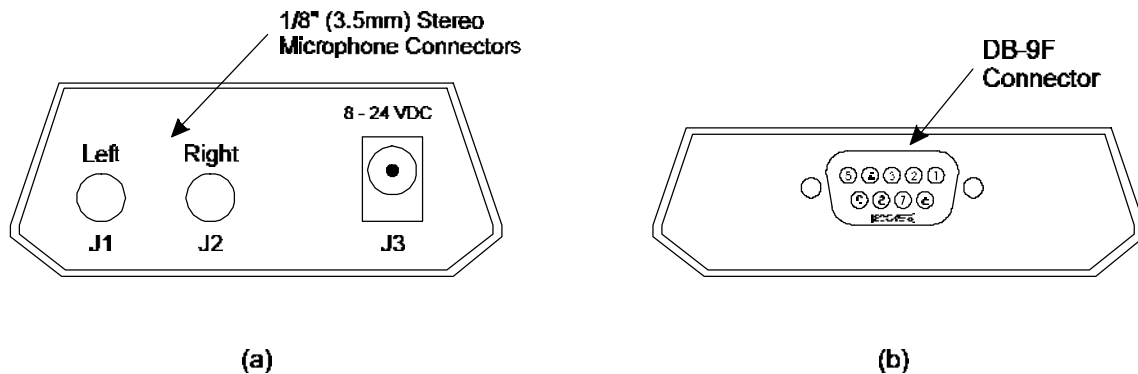


Figure 4. The Remote Switch Interface (RSI) Transmitter is illustrated in (a) and the RSI Receiver is illustrated in (b). The RSI Transmitter is normally powered using, the factory installed, AA-size alkaline batteries. For those who wish to use external power, the Transmitter may also be connected to an 8 to 24 VDC power source. A power cable is available from Origin Instruments.

- Connect the adaptive switch(es) to the RSI transmitter 1/8" (3.5mm) connector jacks. The "LEFT" and "RIGHT" mouse buttons are also commonly referred to as the primary and secondary mouse buttons, respectively. Please note that the RSI Transmitter can also operate with stereo 1/8" (3.5mm) plugs. See the HeadMouse Manual for details on using stereo plugs with the Transmitter.

The RSI Transmitter is normally powered using the factory installed internal batteries. However, the RSI Transmitter may also be powered by any 8 to 24 volt DC power source. See the HeadMouse Manual for details on using external power with the Transmitter.

- Next, position the RSI Transmitter and Receiver. These two devices must be positioned and oriented so that the Receiver can detect infrared light from the Transmitter. Attach the RSI Transmitter to your chair so that the infrared light from the front of the transmitter will generally be directed toward the RSI Receiver. (You can think of the link like a television remote control.) The RSI Receiver can be attached to any convenient item in your work area. For instance, it can be positioned below and to the right of your computer, attached

with Velcro to the bottom of the supporting table. Then, if the RSI Transmitter is attached to right side of your chair (directly opposite from the Receiver), the Transmitter and Receiver should be aligned.

It is not necessary for the Transmitter and Receiver to be close for proper operation. In fact, separating the two by about two feet will tend to alleviate some of the potential problems with pointing the Transmitter. Remember that the Transmitter is very similar to a television remote control and must generally point in the direction of the Receiver.

8. When the RSI wireless communication link is not used, adaptive switch(es) are connected directly to the 1/8" (3.5mm) microphone jacks on the HeadMouse. The "LEFT" and "RIGHT" mouse buttons are also commonly referred to as the primary and secondary mouse buttons, respectively.
9. Installation of the HeadMouse hardware for the "Standard" operating mode is now complete.
10. For "Teach" mode operation, connect a Microsoft compatible serial port mouse to PORT B, as shown in Figure 4. **Please note that the HeadMouse only detects the presence of a desktop mouse at the application of HeadMouse power.** In the Teach mode, the HeadMouse will have control of the mouse pointer unless the desktop mouse is active – button clicked, button held, or mouse moving. After the desktop mouse is inactive for approximately two seconds, control will return to the HeadMouse. For more information please see the HeadMouse Manual.

II. HeadMouse for Portables Installation

1. Remove the Sensor and Interface Unit from the box, taking care not to touch the dark optical window on the Sensor's front panel. Using the included Dual Lock pads or double stick tape, attach the Sensor to the computer display or AAC device as shown in Figure 5. Depending on what was ordered you will have received a standard or miniature Sensor. The standard Sensor is typically used with laptop computers while the miniature Sensor is often used with dedicated AAC devices.

When mounting to a laptop computer display, position the standard HeadMouse Sensor so that the optical window is approximately one inch above the top edge of the computer display. It is important that the top edge of the display not be in the Sensor's field-of-view. If it is, you may see erratic mouse behavior. Also, you should generally position and orient yourself and the Sensor so that you are looking directly at the Sensor — eyeball to "eyeball". Mode switches one and two should be set as indicated in Table 1 for "cord extends from the bottom" Sensor orientation (Switch 1 and Switch 2 down).

When mounting the miniature Sensor to an AAC device set the mode switches one and two as indicated in Table 1 for "cord extends from the top" Sensor orientation (Switch 1 down and Switch 2 up).

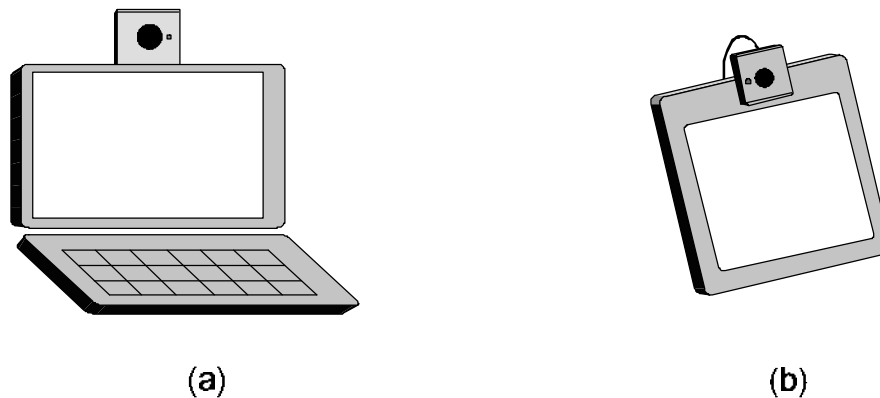


Figure 5. HeadMouse for Portables attached (a) to a laptop computer using the standard Sensor and (b) to an AAC device using the miniature Sensor. In both cases, the Sensor is attached using Dual-Lock or double stick tape. Check with Origin Instruments for additional mounting aids that may be available.

2. **Using the HeadMouse for Portables with an AC power adapter:** (Skip to step three for use with a battery.) Plug the AC adapter into the appropriate AC mains wall socket. Then connect the AC adapter to the “PWR” connector on the Interface Unit. See wiring diagram in Figure 6. A high current AC power supply is optionally available for powering a laptop computer from the Interface Unit accessory power socket. (Skip step three and continue with step four.)

| 1 | 2 | 3 | 4 | HeadMouse Sensor Orientation |
|---|---|---|---|---|
| D | D | X | X | Sensor cord extends from the bottom |
| U | D | X | X | Sensor cord extends from the right side |
| D | U | X | X | Sensor cord extends from the top |
| U | U | X | X | Sensor cord extends from the left side |
| 1 | 2 | 3 | 4 | HeadMouse Power Adapter Mode |
| X | X | D | D | Standard Mode* (AC adapter use, accessory socket disabled.) |
| X | X | U | D | Factory Special |
| X | X | D | U | Factory Special |
| X | X | U | U | Automatic Mode** (Battery use, accessory socket enabled.) |

Table 1. HeadMouse for Portables operating mode switch description. Mode switches are accessed through the panel opening next to “PORT B” on the Interface Unit. (X-not applicable, D-Down, U-Up)

* 8- to 24-volt DC Input.

**12- or 24-volt DC input. The low current AC wall transformer shipped with the HeadMouse for Portables should not be used to power devices from the accessory socket.

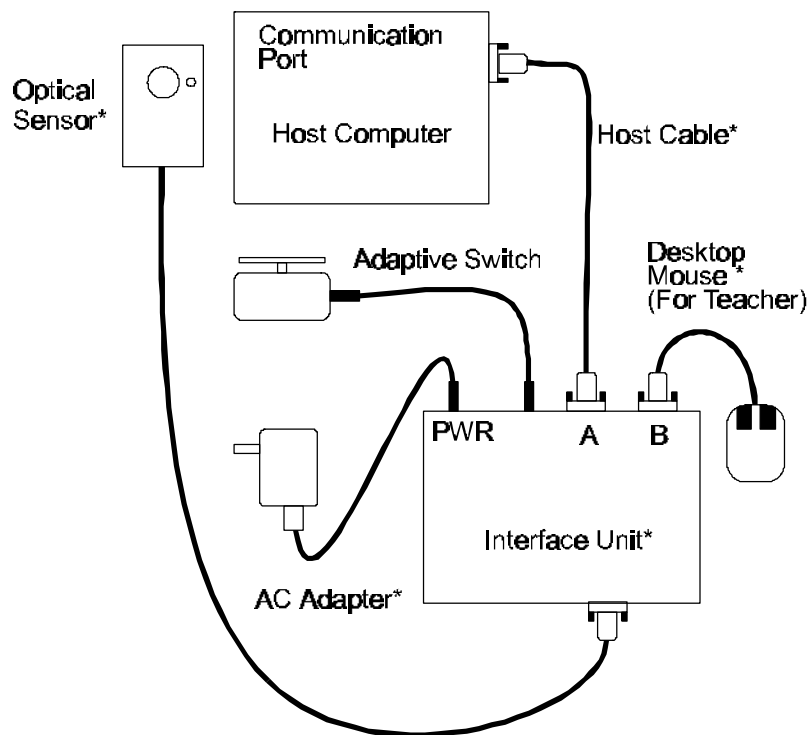


Figure 6. Wiring diagram for using the HeadMouse for Portables with an AC adapter and the Teach mode mouse. A high current AC power supply is available for powering the laptop computer through the HeadMouse interface unit. (* - These items are supplied by or are available from Origin Instruments.)

3. **Using the HeadMouse for Portables with a 12- or 24-volt battery:** Connect the HeadMouse for Portables as shown in Figure 7. Please note an automotive power adapter, specific to the laptop computer or AAC device, connects to the accessory socket on the Interface Unit front panel. To obtain the appropriate cable, contact the manufacturer of the computer or AAC device. This accessory socket provides a nominal 12-volts at 2.5 amps to the adapter from the 12- or 24-volt battery. **Note, the HeadMouse for Portables is shipped from the factory set to Standard Mode (AC adapter use.)** Refer to Table 1 for a description of the mode switch settings. Run time for the HeadMouse and connected laptop computer is dependent on battery capacity, and the HeadMouse and laptop computer power demand.

Set the mode switches to Automatic Mode (Battery use.) The Interface Unit will automatically determine the input battery voltage, provide 12-volts to the accessory socket, and remove load before the battery is deep discharged. Prior to load removal a series of “Status” light flash codes are used to indicate imminent loss of power.

Special power cables are available for accessing power wheelchair batteries from the standard recharge connector. These cables provide access to the battery voltage while maintaining clear access to the recharge connector. For connection directly to the battery stack, a cable is available with 5/16” (8mm)-ring terminations that can be attached to the battery connectors. **Note well, it is very important that any cable connected to a high capacity battery be fused.** In the case of the HeadMouse for Portables, this fuse should be a minimum of 5- and no more than 10-Amps.

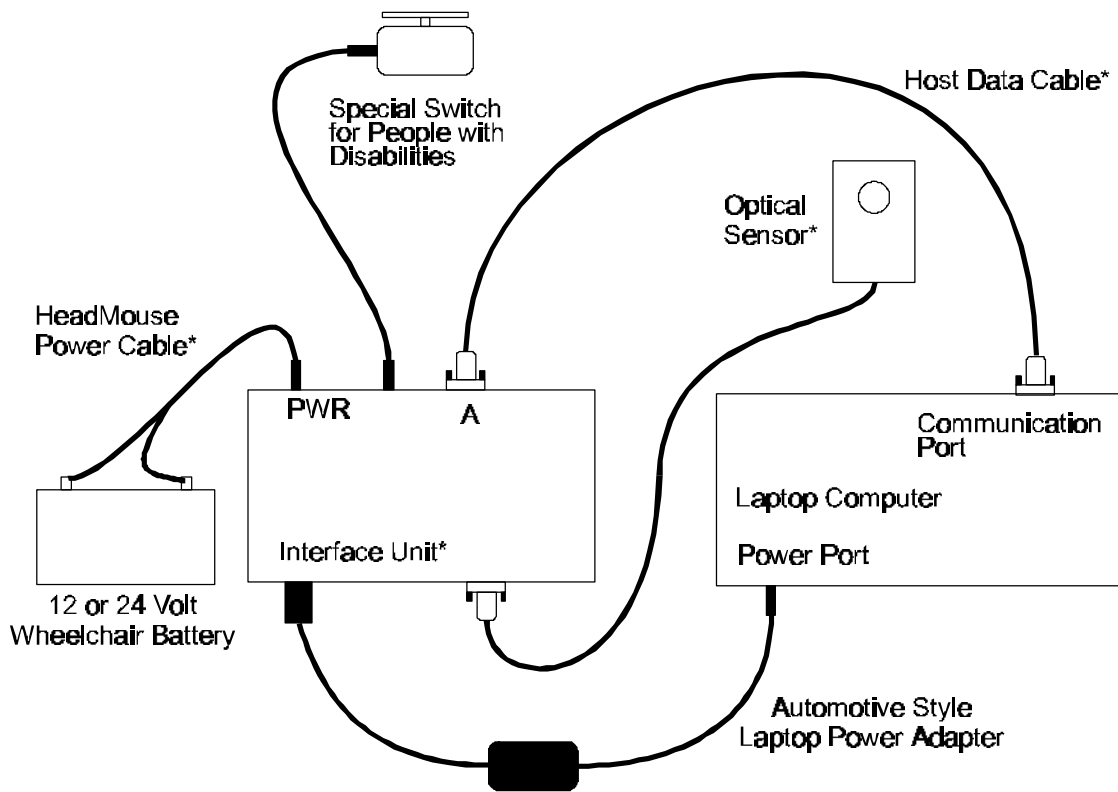


Figure 7. Wiring diagram for using HeadMouse for Portables with a 12- or 24-volt battery. The power cable attached to the battery must be protected by a fuse. (* - These items are supplied by or are optionally available from Origin Instruments.)

The input power connector used by the HeadMouse is a standard 2.5-mm inner diameter coaxial connector and is illustrated in Figure 8.

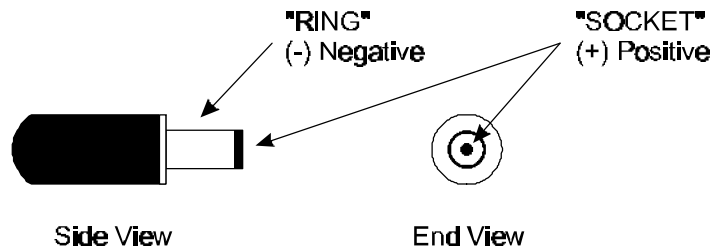


Figure 8. HeadMouse for Portables input power connector, inner diameter 2.5mm.

- Using the HeadMouse interface cable (9-pin, PS/2, ADB or USB), connect "PORT A" on the Interface Unit to the host computer port that is normally connected to your desktop mouse. *Please note that PS/2 devices should be connected to the host computer at boot time for proper initialization. If the PS/2 device is disconnected after initialization, it may not function again until it is re-initialized.* See the wiring diagram in Figure 8 and illustration of the Interface Unit rear panel in Figure 9.

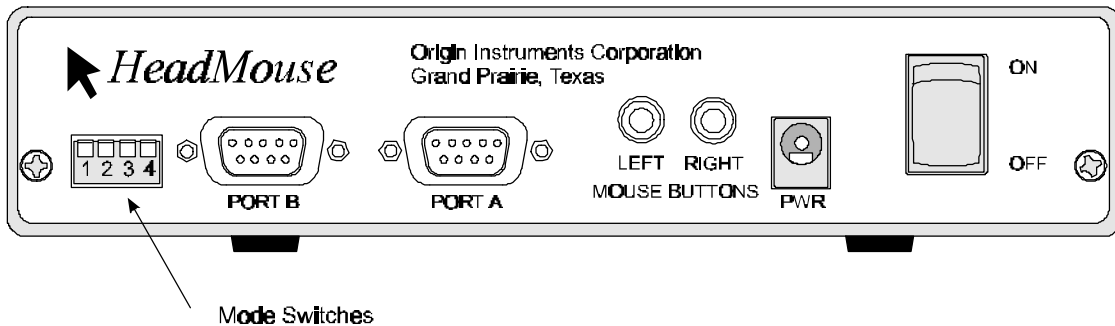


Figure 9. The Interface Unit rear panel. The factory defaults for the mode switches are switches 1, 3 and 4 down with switch 2 positioned appropriate for the specific HeadMouse Sensor, see Table 1.

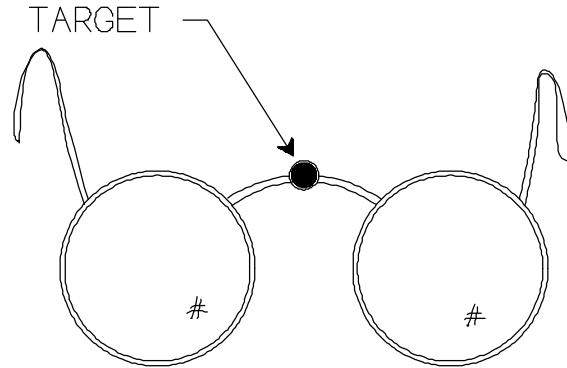
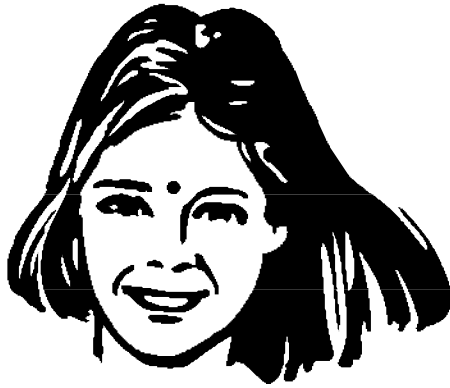
- Adaptive switch(es), if used, are connected directly to the 1/8" (3.5mm) microphone jacks on the Interface Unit rear panel. The "LEFT" and "RIGHT" mouse buttons are also commonly referred to as the primary and secondary mouse buttons, respectively.
- Installation of the HeadMouse hardware for the "Standard" operating mode is now complete.
- For "Teach" mode operation, connect a Microsoft compatible serial port mouse to PORT B, as shown in Figure 6. *Please note that the HeadMouse only detects the presence of a desktop mouse at the application of HeadMouse power.* In the Teach mode, the HeadMouse will have control of the mouse pointer unless the desktop mouse is active – button clicked, button held, or mouse moving. After the desktop mouse is inactive for approximately two seconds, control will return to the HeadMouse. For more information, please see the HeadMouse for Portables Manual.

III. Target Dot Placement

The paper-thin target dot is a special infrared reflector. The HeadMouse uses this dot to determine the position of your head and thereby directly control the computer mouse pointer. This adhesive backed target dot is typically attached to your forehead or glasses. As discussed previously, the HeadMouse must be able to see the target dot in order to function. Therefore, some people with long bangs or baseball caps may need to make some adjustments. It's very simple to determine whether you have a problem. While looking in a mirror, turn your

head from side-to-side and up-and-down like you're controlling the HeadMouse. If you can still see the target dot during these movements, then so can the HeadMouse.

The two following illustrations show how the target dot can be placed directly on the forehead or eyeglasses.



It is important to note that in the case of attaching the target dot to glasses, it should be attached to the frames and not directly to a lens. For best performance, persons with shiny metal frames should attach the target directly to the forehead, with the target dot positioned approximately one inch above the frames. Target dot placement is only an issue regarding HeadMouse performance. The HeadMouse will not be damaged by any target dot placement. For more information regarding target dot placement, please refer to the HeadMouse Manual.

Your HeadMouse and target dot should now be properly installed, so turn on your HeadMouse and your computer, start your on-screen keyboard and begin your computing session.