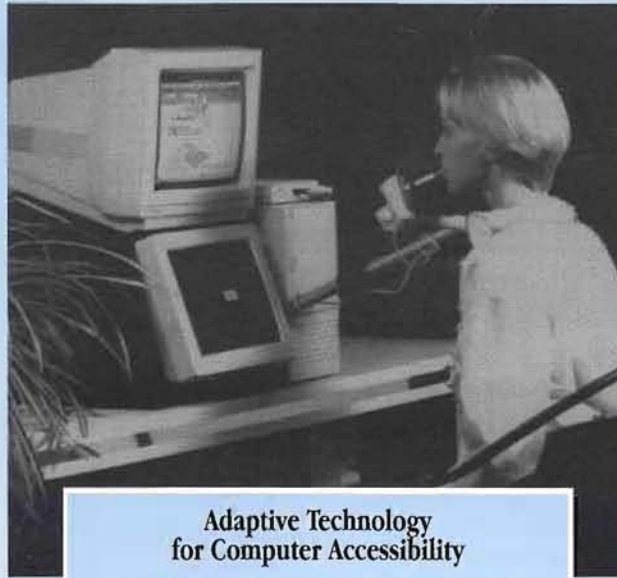


Whether you sip, puff, point, track, touch or blink, the new Adap2U is the gateway to new independence.

The personal computer can be our gateway to communication, education, information, employment, entertainment, environmental control—independence. Unquestionably, the use of computers is part of our everyday lives.

If computer access using a keyboard is restricted due to physical or other limitations, the Adap2U keyboard emulator system may be a superior solution for you, whether its at home, school, or work.

The Adap2U is a powerful alternative-input interfacing device that replaces a standard keyboard and is fully transparent to the host computer and applications software. It enables complete access by individuals with special needs to all standard MS-DOS, Windows, or networked software on IBM AT-type personal computers.



Adaptive Technology for Computer Accessibility

- Versatile keyboard and mouse emulation
- Supports a variety of input devices and methods
- Compatible with all software, including Windows
- Powerful Input/Output control
- Satisfaction guaranteed

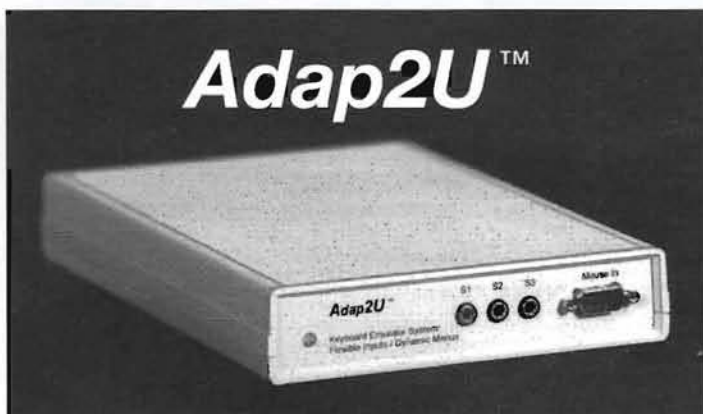
emulating pointing devices, AdaPoint™ head-operated pointer, trackball, touch-window, Iconroller®, Felix™ mouse, single or multiple contact switches, or combinations of pointers and switches. The system's flexibility puts the use and power of computers and software within your reach.

A full screen of dynamically interchangeable 'keys' or menu items is displayed on a monitor connected to Adap2U. This separate 'keyboard' menu screen allows an unobstructed view of your host computer programs and lets you keep your favorite 'keyboard' layouts in front of you.

On-screen menus can be easily customized or created for different applications. Menus can be organized in groups, or 'sets' of up to 12 menus. Any number of menu sets may be selected from Adap2U's memory, and new sets of menus can be quickly uploaded to the system.

The Adap2U Editor software allows the easy creation of 'keys', menus, and sets of menus. The 'meaning' of each 'key' defined can include sequences of characters, control characters, words, or commands.

Special commands may be included in key meanings for Adap2U to perform a variety of special functions, such as sending a phrase to a speech synthesizer or commands to an environmental control device connected to one of its serial ports.



Adaptive Keyboard Emulator for IBM-type personal computers

Adap2U specializes in being adaptable to your particular needs in utilizing a computer. It supports a variety of input devices and methods, such as mouse-

AdapTek  **Interface**

Adaptive Technologies for Computer Accessibility

(206) 230-0076

4832 East MercerWay, Mercer Island, WA 98040

A wider world

Helping the disabled book up to a PC, and more

By Hunter Fulghum

Imagine trying to use Microsoft Windows without your hands. Bill Jepson has imagined precisely that. His Bellevue (now Mercer Island) company, AdapTek Interface, has developed a new system to help a disabled person to use an IBM or IBM clone computer without a traditional keyboard.

Jepson is marketing the Adap2U, a system that interfaces a personal computer to practically any sort of input device, such as a touch screen, joystick (mouse-like), or a switch operated by the lips, head, and chin. Adap2U even works with innovations like a Sip and Puff, the switch operated by blowing and sucking gently on a straw.

The need to dispense with a keyboard is critical for some people. Many disabilities, such as cerebral palsy, spinal bifida, and traumatic spinal cord injuries, can result in little or no control of the hands. While many people with disabilities can communicate, they can't hook their means of communication up to a PC.

The Adap2U is especially important to people like Tania Nott, a Kingsgate resident who has cerebral palsy. She is in her twenties, pretty, very smart, with a good sense of humor, but has limited control of her movements and cannot speak. She's had jobs before but they've required no skills and little thought.

Nott is able to move her head back and forth to activate two switches mounted just behind her ears. She toggles the switches on and off to signal Morse code through the Adap2U, which in turn gives her access to the spectrum of software, from word processing and spreadsheets to games. Tania says that the Adap2U is the bridge she needs to get into a better position. Right now she is looking for work in data entry.

Beyond that, she can ultimately connect the system to a speech synthesizer, or use it to control her lights and appliances, which in turn makes single living more realistic. Tania says that the Adap2U is the best system available.

Jepson has firsthand experience with disabilities. In 1950, his father, a Boeing aerospace engineer, was stricken with paralytic polio, leaving him a quadriplegic. Jepson says that being involved with

his father's life after he became disabled provided the inspiration that drives AdapTek Interface.

For his father, "coping was a requirement for survival, but I learned through my father's persistent demonstration throughout many years, that by reaching out with a positive attitude, being

In the mid-1980s, Jepson co-founded Ioline, and internationally known company that manufactures pen plotters for computer-aided drafting. In 1986, he began developing the concept behind the Adap2U, while helping his father, who had taken an interest in PCs, but could not operate a keyboard.



inventive, and mentally active and productive, a disability can be almost transparent." Jepson's dad had an impressive career in spite of his disability, working for Boeing into the 1970s, and having a number of patents to his credit.

Three years ago, he sold his interest in Ioline and founded AdapTek Interface. Since introducing the first unit in 1993, AdapTek has sold systems around the world, from Australia to the Netherlands.

Eastsideweek, June 29, 1994

Gaining access

*Adaptive
technology
expands horizons
for those with
disabilities*

A young woman sits in a motorized wheelchair. In the vernacular of disabilities, she is a CP non-verbal quad.

In plainer words, it means that she has cerebral palsy, that she cannot speak, and is a quadriplegic.

In human terms, it means that she is effectively isolated from the rest of the world, unable to move, work, communicate or perform any number of basic function — if not for the strength of her desires and the aid of technology to support them.

Adaptive technology is the catchall name used to describe hardware and software that have been designed or modified to meet the needs of the user, specifically with regard to physical disabilities.

Adaptive systems are, in effect, universal adapters. They interpret a wide variety of user input methods into signals a computer can understand.

Some individuals are able to use code to drive the universal adapter. A young Kirkland, Washington resident, Tatiana Nott, uses two switches mounted behind her head to tap out Morse code.

A relatively new universal adapter, the Adap2U, developed by Seattle-area-based AdapTek Interface, is designed for people like Tatiana. It can interpret almost any code or input method, including the type Tatiana uses, and use them to control any keyboard or mouse function with her IBM-type computer. Having an Adap2U, Tatiana says, means "total freedom of access to the world, to call people, read the newspaper, look for a job, even send an application to an employer."

"We have engineered Adap2U to be highly configurable in order to accommodate a wide variety of individual needs, as they occur over time," says Bill Jepson, president of AdapTek Interface. Adap2U is capable of accepting joystick, mouse, touch screen or any number of other inputs.

Excerpt from "Gaining access", by Hunter Fulghum, The Seattle Times, October 9, 1994

“My name is Mike Beers...”

I became disabled in 1979. I am currently employed by the Washington State Department of Revenue as a Computer Technical Specialist.



I was first introduced to the personal computer in 1983. At that time, both my arms had sufficient strength to type using a standard keyboard. Over the next eleven years, as the strength of my arms has lessened, I have used a variety of software, modified keyboards, and alternative input devices.

After a demonstration of the Adap2U system with the AdaPoint input device, I knew that it was by far the best input device I have evaluated to date. At this point, I could go on and on about the features of the Adap2U and AdaPoint, but will touch on only one of its many outstanding features. I will leave the rest to the Adap2U documentation.

I do not have the ability to use a mouse. With many of today's software packages being written to run under Windows, the use of a mouse is almost mandatory. The Adap2U system gives the user full mouse capabilities. This one feature alone gives a user the ability to run every software package available today.

I highly recommend the Adap2U and AdaPoint system to all.”

— *Mike Beers*

Meet Jim Lubin

“I needed a device that would allow me to use a computer with limited movement. The Adap2U does that.

I am using a 2-switch sip-and-puff air switch to type “morse” codes, but it can be used with just about any type of input device. There are codes for every keyboard key, mouse movement and buttons. The codes are completely definable, so I defined codes that I could remember. You can load up to 12 code groups at once and switch between them.

For example, to type the letter “u”, I do a “sip-sip-puff”; then I change to my Windows code group and the



same code now means a double-click of the left mouse button. I have

another code group where a single “sip” will send my web page address “<http://www.eskimo.com/~jlubin>”.

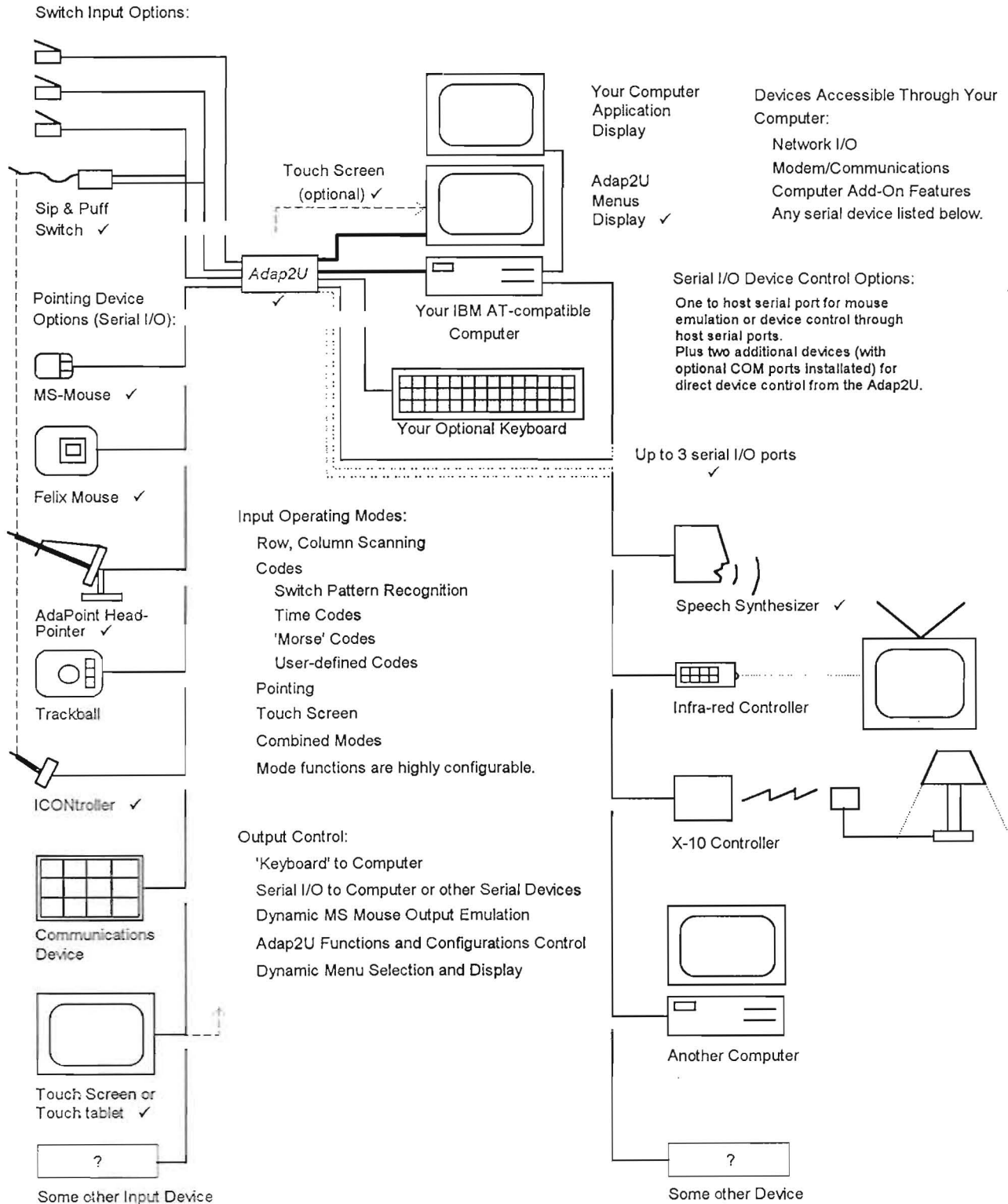
It is completely transparent to the computer and no modifications or special

drivers are need for programs. I can even use Windows programs without any special modifications.”

Jim is a C2 quadriplegic, paralyzed from the neck down, and dependent on a respirator to breathe. He learned morse code while in the hospital and ‘types’ at about 30 words per minute. He uses his computer for his consulting work, and for pleasure!

Jim Lubin
Bothell, Washington
jlubin@eskimo.com
<http://www.eskimo.com/~jlubin> (Try this out on the Internet!)

Adap2U™ Keyboard / Mouse Emulator System Configuration Options Diagram



✓ = Available from AdapTek Interface

Computer Access with the **Adap2U**[™] Keyboard and Mouse Emulator system

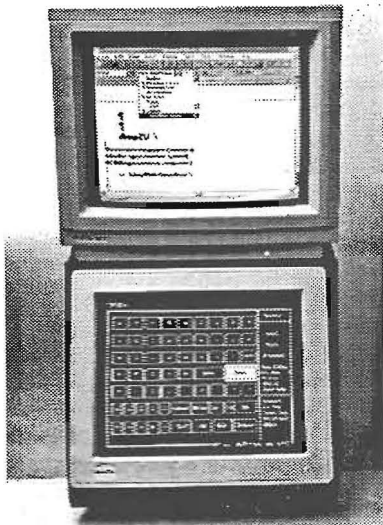
This system is for individuals who can benefit from using IBM-type computers, without having to use a keyboard.

Here are some *Adap2U* features and functions:

- Complete, **transparent access** to IBM PC/AT-compatible computers with **any** DOS, Windows, or networked applications —

The *Adap2U* plugs into the keyboard port of the host computer. To the computer, it is a keyboard. A standard keyboard can also be plugged into the *Adap2U* and used simultaneously with the *Adap2U*.

- Dynamically interchangeable, multi-level, user-definable 'menus' displayed on a separate monitor (**no screen sharing**) —

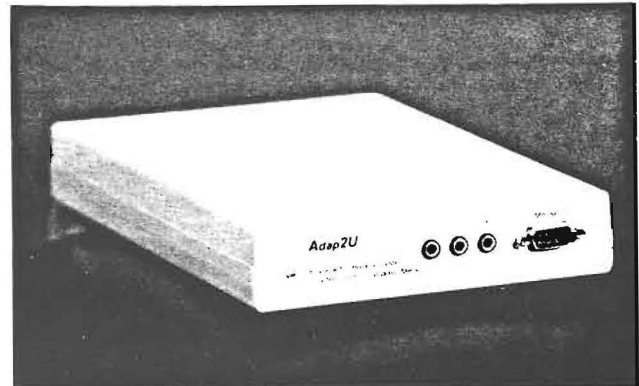


Most computer software was written with the intention that it would use the entire screen area. A separate monitor plugs into the *Adap2U* and displays menus (like keyboard overlays) with keys (menu items) which can be defined by the user. A key can be selected by various methods discussed later. Menus can be created with the menu editor on the host computer. Dozens of menus can then be transferred up the

keyboard cable and stored in the *Adap2U* memory. Each can be selected by picking from a list of them displayed onscreen.

- No memory-resident programs (**no TSRs**). Works with **all standard** software.

The *Adap2U* does not require software to be running on the host computer. Loading *Adap2U* menus and configurations is a one time event for each time the *Adap2U* is powered up (it can be left turned on while the PC is turned off), and just takes seconds. There are no *Adap2U* programs left in the computer's memory to conflict with any other software.



- A variety of **alternative input devices** may be used to control the system:

The actual means of controlling the computer through the *Adap2U* is by using simple switches, some kind of pointing device (serial output type, such as a mouse), some other serial output device (such as a communications device), or a combination of switches and serial devices.

Here are some examples of RS232 serial input device types:

- Microsoft-compatible serial **mouse** devices
- **AdaPoint**[™] ✓ head-operated pointing device
- **Super Pointer Plus** ✓ limited range pointer
- Trackball devices
- **Touch window** ✓ or touch pad (used on the *Adap2U* screen, tabletop, or lap)
- Single or multiple switches (pushbutton or pneumatic)
- **Icontroller** ✓ 'joy-mouse'
- Communications devices or other computers with serial output
- Combinations of switches and an input device.

Several **powerful access methods** may be used, some in conjunction with others, to easily adapt the system to the user's special needs and capabilities:

- **Direct pointing** using a serial pointing device

The cursor can be controlled in the *Adap2U* display for key or menu selection, or in the host computer application screen in the passthrough (mouse emulation) mode. All movement axes can be individually scaled, inverted, or swapped on both direct to *Adap2U* or passthrough modes. Its really handy to be able to switch the cursor into low gear (zoom scaling feature) when working on small graphics detail. Scaling is user-definable.

There's more —

AdapTek  **Interface**[™]
Adaptive Technologies for Computer Accessibility

- **Switch events:** 3 separate **switch inputs** plus mouse button inputs can be individually programmed, allowing flexibility in function

Switch pattern recognition techniques (open, close, combination, code, timing, or sequence) provide thousands of distinctive switch actions. Each can be defined to perform any type of computer entry or function, a command to the *Adap2U* for any of its functions, or a macro of things like keyboard keystrokes (up to 400 per macro), for example, a string of text to be sent out the optional *Adap2U* serial port to a text-to-speech / voice synthesizer.

- **User-definable codes using switch inputs**

Code types are **Morse codes** (a switch for the dits, another for the dahs), **Time codes** (Short, Medium, Long, eXtralong switch closures – up to 12 of those strung together, define a code), **Chords** (patterns of multiple switch closures), or **Switch Events** (detection of a single switch closure or opening). Although several complete sets of codes are supplied, the user can define custom codes for specific tasks. Codes or switch events may even be used more than once, by defining them in different code groups and switching between the groups. This technique allows more meanings for shorter codes. For example, one set of codes could be for the alphabet and keyboard characters, another group for numeric data entry, another for full mouse cursor movement and button functions, and another for special control functions or macros.

- **Scanning techniques**

Row and column scanning variations enable menu item (key) selection using single or multiple switches. Popular modes are supported. All menus, keystrokes, commands, macros, mouse controls, etc. are accessible with scanning.

- **Standard keyboard passthrough**

Your keyboard can be plugged into the *Adap2U* and be used concurrently with other input methods.

- **Serial input events**

Each of the two serial ports (plus two optional ports) can be configured to recognize specific character bytes (a serial event) being sent to the *Adap2U*, and respond with some action (a meaning) defined by the user.

- **Highly adjustable modes and configurations**

Modes are activated with *Adap2U* commands which can be issued with a switch event meaning, a menu key definition, or a serial input event. These types of mode commands can be predefined (or edited) by the user in either a Configuration or a Menu. Both are files stored on the host computer disk and uploaded to the *Adap2U* when needed. Mode commands can also be imbedded in menu keys or within event definitions. For example, the Morse code input speed can be changed with a code or a switch, or the zoom scaling can be changed with a code.

Versatile *Adap2U* Input/Output and control may be used for:

- **Keyboard emulation**

Performs any standard keystroke, *plus* many other functions not available from a keyboard, like definable multiple repeats of keystrokes or macros, sticky keys, complex macros, etc.

- **Mouse emulation** (Microsoft-compatible serial mouse) output

The mouse cursor movement can be controlled directly, using the passthrough mode (if a pointer is being used and the serial cable is installed between the *Adap2U* and the host computer serial mouse port), or indirectly with the mouse movement emulation commands using codes or keys. Clicking or double-clicking of mouse buttons can also be emulated with single codes or keys.

- ***Adap2U* control, dynamic menu selection and display**

Switch between menus, sets of menus, code or switch event groups, modes (passthrough, zoom, etc.). A lot of control is available.

- **Serial output (I/O) for voice synthesis, environmental control, other computers, or control of other independence-enabling devices.**

Use either the keyboard port or the serial ports to send speech output text and commands, or commands to such enabling devices as the X-10 Home Control Interface, infrared appliance controllers (for TV, audio, VCR, etc.), or any other computer assisted device. *Adap2U* menus can be made (examples supplied) to control these devices conveniently with a single key selection or switch action.

- **Tone output through the *Adap2U* speaker**

Tones can be defined by frequency and duration and can be used to give audible feedback for codes, status (like identifying code groups when switching to them, each with a distinctive tone). One of the sample menus has a piano keyboard to play music with. Make a macro key to play your favorite tune.

Special Note:

The *Adap2U* is shipped to you with a starting configuration customized for the particular way you will be using it. This is done by considering your system's specifications, evaluation of capabilities, and general kinds of computer activities that will be performed.

When you receive the *Adap2U*, all you have to do is plug the system in, use the INSTALL program to copy the support files to the computer's hard drive, then run your personalized batch file. Then your customized setup will be uploaded to the *Adap2U*. Within seconds you will be in control of your computer!

We, too, want *you* to be successful in enjoying all the benefits of computer access!

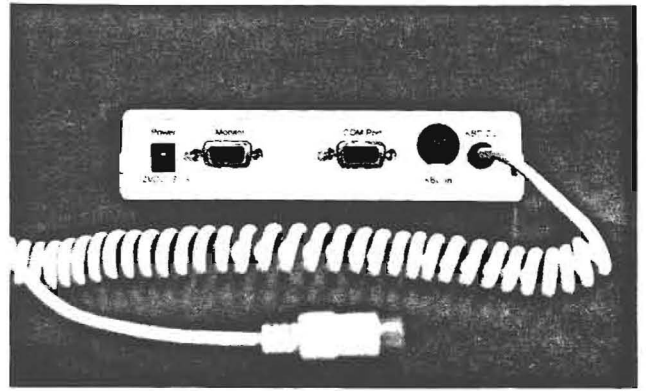
✓ **Items available from AdapTek Interface**
Call or FAX (206) 230-0076
E-mail: adap2u@eskimo.com

Adap2U Specifications:

- IBM PC/AT/386/486/586/PS2 compatible keyboard emulation and serial interface
- PC/AT compatible keyboard input and output. PS/2 compatible using connector adaptor ✓
- 1 serial port (PC compatible), up to 19,200 baud, for mouse input or other I/O
- 2nd serial port (DB9F, serial device), up to 19,200 baud. May be used for mouse emulation/pass-through, voice output, or output to any other serial device. Single character input recognition capability.
- *Optional* 3rd and 4th serial ports (DB9M, emulates PC COM port). May be used for voice output, or output to any other serial device. Single character input recognition capability. See A2USP and A2USPR options below.
- 3 switch input ports (1/8" mini jacks) for SPST momentary switches (no signal)
- Bi-color status indicator
- Definable tone output (frequency/duration) for codes or other alerts
- ROM-resident menus with complete keyboard characters and functions, and local memory for your uploaded custom menus
- PC (DOS)-based software for creating custom menus or setup configurations
- Comprehensive user's manual, and developer's guide for custom screens or configurations.
- Power: 8-12VDC supplied by a wall-mount DC power adaptor, 7 Watts max.
- Dimensions: 1.4" x 6.25" x 9.5"

System Requirements:

- An IBM AT-compatible **computer** (286 or higher), HD, 3½" FD, at least 640K of RAM
- **Software:** MS-DOS 3.1 or higher (or any version of Windows, including Windows95), plus any applications you want
- One or more **input devices** ✓ (switch and/or pointing)
- The *Adap2U* display: A Hercules compatible, **TTL monochrome monitor** ✓ (the kind with a 9-pin connector).



Included:

- A2U10 - Adap2U Keyboard and Mouse Emulator
- 110V Power Supply (220V available upon request)
- Software on 3½" disk
- Example Menus and Configurations
- Custom Configuration for a quick start!
- User's Manual (also on disk)
- One-year limited warranty
- Satisfaction Guarantee!

Options:

- A2USP - Adap2U Serial Ports (factory option) ✓
- A2USPR - Adap2U Serial Ports (return-to-factory retrofit) ✓
- ✓ *Items available from AdapTek Interface*

AdapTek  Interface™

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