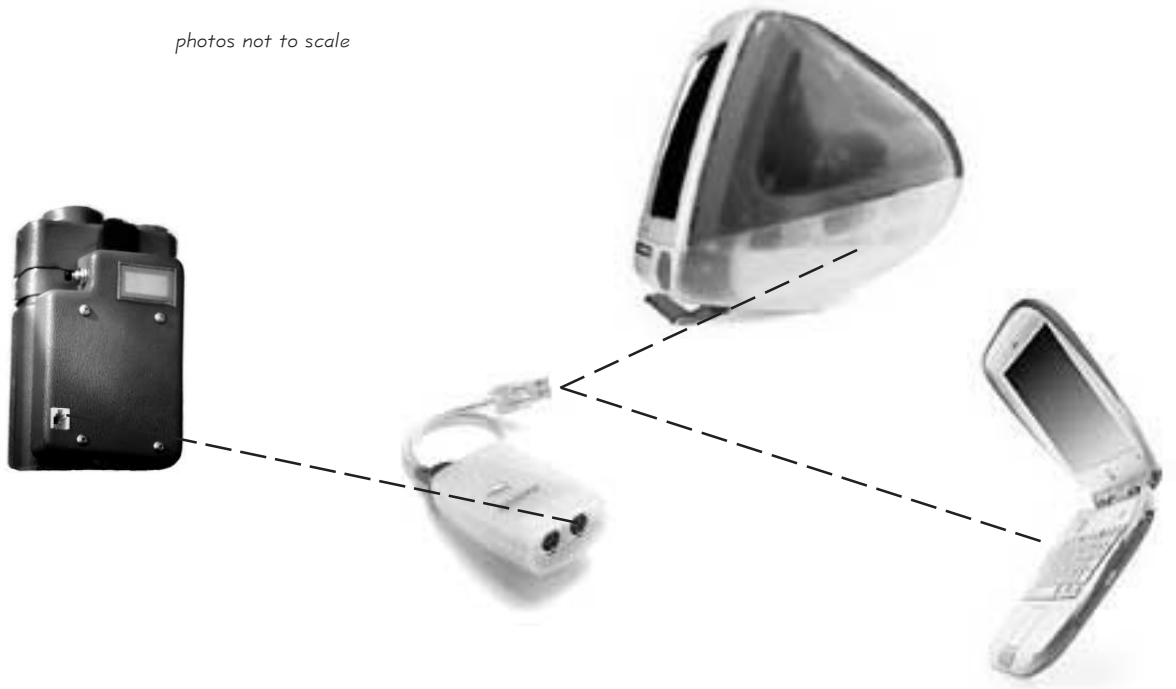


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photos not to scale



To connect any DataBear (the Model T15d Enhanced CO Measurer is shown) to a new Macintosh, use a USB adapter (a Keyspan USB Twin Serial Adapter is shown). The iMac and iBook (shown) plus new G3/G4 desktop and PowerBooks have USB Ports.

USB: Still a Serial Port!

Bear Facts -- #111

New Macintosh computers no longer have the familiar 'modem' and 'printer' serial ports, the interface to Langan instruments. What to do? Use USB!

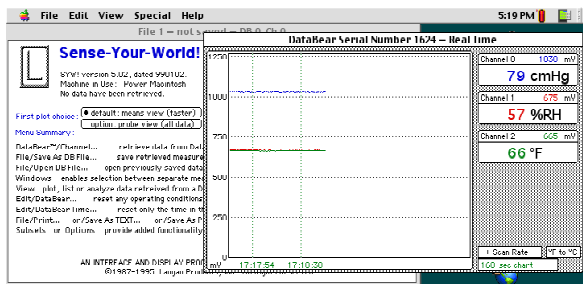


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the DataBear

Bear Facts are published to provide useful insights into the operation and applications for the DataBear™ Measurer and associated complete instruments.



Sense-Your-World! Software operating on an iBook. The use of the Real Time Display requires a rapid response interface with the DataBear.

USB - Universal Serial Bus
(see www.usb.org for details)

As Macintosh computers have evolved, the change to faster processors, translucent plastic and very-broadly accepted standard interfaces has left long-familiar parts of the systems behind. These hardware changes are demanding, as are software changes and options, for the manufacturer. They require updates defining just how the user can continue to operate instruments.

Two such requirements exist when using new Macs:

absence of floppy drive

Floppy drives are archaic because of the size of many new files, the massive size of internal drives and the convenience of the Internet. Langan Products, Inc. still distributes software on these, but all applications and manuals are also available on our web site www.sirius.com/~langan/mansoft.html. If requested these can be supplied on compact disk.

absence of DIN-8 RS-422 serial connections

The missing serial connections require that the user obtain a commercial USB-to-Serial Interface. The Keyspan Model USA-28x is a directly compatible external USB device which can be adapted in a straightforward manner. Other manufacturers (such as Belkin and Griffin equipment) provide a similar capability, but these have not been tested.

The Keyspan USA-28 (original) and USA-28x (new and more capable) both have two Communications Toolbox capable serial ports accessible on a small box which is plugged into the USB port of an iMac, iBook, G3, G4 or PowerBook. On this device, serial port #1 can be configured to act as a traditional PRINTER port. This capability is used where applications are *not* programmed to use the Communications Toolbox— such as Sense-Your-World!.

To use the y2k-compatible Sense-Your-World! releases (those beyond version 5.00), two ‘switches’ MUST be made:

1) Keyspan Serial Manager

One-time only, the “Receive FIFO:” must be set to “Off” for Port 1. Only change this one setting. Press



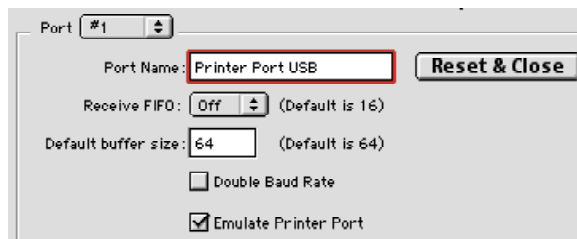
the ‘Reset & Close’ button. *Unplug and plug the connection.* Until changed again (or if Keyspan preference file is removed), it will remain.

The Keyspan Serial Manager is a separate Keyspan program accessed using the ‘Advanced Settings’ button in the Keyspan USB Serial Assistant Control Panel (for USA-28x). For USA-28, the Keyspan Serial Manager is a separate program available on the Keyspan download site www.keyspan.com.

The most recent driver software should be used; Version 1.62 for the Model USA-28x Twin Serial Adapter worked well (released in May 2000). Earlier versions, and Version 2.0 for the earlier Model USA-28 Twin Serial Adapter, had minor bugs that occasionally stopped the data transmission*.

2) Sense-Your-World!

In the DataBear Menu , select “Use Printer Port”. This must be done each time the application is opened; it remains so long as the application is open. A special version of the SYW! Software is posted on our website (SYW! 5.02p) which has the printer port defined as the default; for this version no action is required.



A portion of the Keyspan Serial Port Manager, showing the single setting that must be made to allow the DataBear to operate correctly on the USB serial bus. The FIFO should be ‘off’ on Port #1.

TWO CAUTIONS

- 1) If you are using a USB hub, connect only one Keyspan Adapter at a time.
- 2) If your Macintosh has traditional modem/printer ports, use them, not USB.

* During testing, the SYW! Software stopped several times; it ‘hung’ the machine, requiring that the Mac-capable ‘force reset’ be used: hold Option+Command down & press ESC. This exits SYW! leaving the computer usable. Except: the serial port is disabled for any other programs to use or for SYW! to work again. The Keyspan Serial Manager has a handy **Reset & Close** button which enables the serial port. This eliminates the need, otherwise, to restart.

Langan instruments normally include the DataBear data acquisition system. This field-proven component uses the traditional RS-232 serial interface. Modifications to recent Macintosh Computers require a new adaption to make this connection. Off-the-shelf active cable connections suit the need, well.