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Engineering Note

Topic: USB-ADP-H Serial Adapter Connecting to Spectrometer, Light Source and Battery Pack

Products Affected: HR2000, USB2000, USB-LS-450, USB-BP

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Description

The USB-ADP-H Serial Adapter is used with either the USB2000 or the HR2000 Spectrometer when connecting the spectrometer to a handheld PC or other serial device.

The USB-ADP-H Serial Adapter is a part of any setup that interfaces the USB2000 Spectrometer (or HR2000 Spectrometer) to a handheld PC, even when other components, such as a USB-BP Battery Pack or USB-LS-450 Light Source are included. See the table below for included hardware and details on interfacing.

USB-ADP-H is used with . . .	This Required Hardware
USB-BP Battery Pack only	Panel screw and modified panel screw with 2 standoffs
UBB-LS-450 Light Source only	Modified thumb screw and modified standoff
USB-BP Battery Pack and UBB-LS-450 Light Source	Panel screw and modified panel screw with 2 standoffs, modified thumb screw and modified standoff.

See Figure 1 below for a view of all the system components.

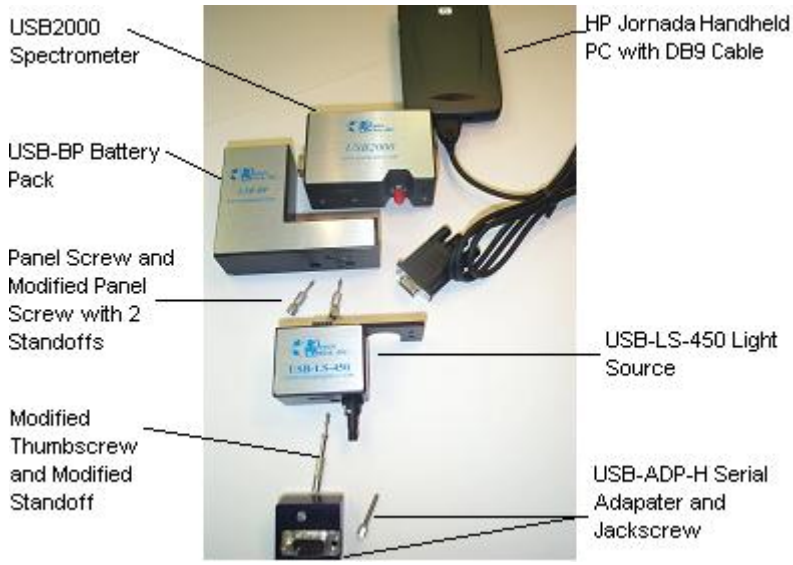

Figure 1: System Components

Installation

The following installation instructions are for

- *Connecting the USB2000 or HR2000 to a Handheld PC*
- *Connecting a USB2000 and USB-BP Battery Pack to a Handheld PC*
- *Connecting a USB2000, USB-BP Battery Pack and USB-LS-450 Light Source to a Handheld PC*

Connecting the USB2000 or HR2000 to a Handheld PC

Figure 2: USB2000 Spectrometer Connected to a Handheld PC

► *Procedure*

1. Install the USB-ADP-H Serial Adapter by plugging it into the 10-pin connector on the USB2000 Spectrometer. For the HR2000 Spectrometer, which has a 20-pin connector, use pins numbered 1–10 (see the diagram below):

20	18	16	14	12	10	8	6	4	2
19	17	15	13	11	9	7	5	3	1

When facing the 20-pin connector on the HR2000, pins 1-10 are on the right.

2. Secure the USB-ADP-H Serial Adapter in place with the included jackscrew.
3. Connect one end of the DB9 serial cable to the USB-ADP-H Serial Adapter on the USB2000 or the HR2000 Spectrometer. Connect the other end to the Jornada handheld PC.

Note

When using a USB2000 or HR2000 Spectrometer in serial mode, the spectrometer requires the USB-CBL-PS 5 VDC power supply for operation.

Connecting a USB2000 and USB-BP Battery Pack to a Handheld PC

Figure 3: Assembled USB2000, USB-BP Battery Pack, and Handheld PC

► *Procedure*

1. Secure the USB Battery Pack to the USB2000 (or HR2000) Spectrometer and with one panel screw and standoff on the left side, and one modified panel screw (4-40 tapped end) and standoff on the right side.
2. Plug in the 10-pin connector of the USB-ADP-H Serial Adapter to the USB-BP and secure in place with the jackscrew.
3. Plug the Jornada DB9 serial cable from the USB-ADP-H to the Jornada handheld PC.

Note

The Jornada handheld PC does not use the USB-BP for power. The Jornada handheld PC can either run from its batteries or it must be plugged into a power source.

Connecting a USB2000, USB-BP Battery Pack and USB-LS-450 Light Source to a Handheld PC

► *Procedure*

1. Secure the USB2000 (or HR2000) Spectrometer and the USB-BP Battery Pack with one panel screw and standoff on the left side, and one modified panel screw (4-40 tapped end) and standoff on the right side.
2. Secure the USB-LS-450 Light Source to the USB-BP Battery Pack with one modified thumbscrew and standoff.
3. Plug the 10-pin connector of the USB-ADP-H Serial Adapter into the USB-LS-450. Secure in place with the jackscrew.
4. Plug the Jornada DB9 serial cable from the USB-ADP-H into the Jornada handheld PC.

Note

The Jornada handheld PC does not use the USB-BP for power. The Jornada handheld PC can either run from its batteries or it must be plugged into a power source.

Figure 4: Assembled USB2000, USB-BP Battery Pack, LS-450 Light Source, and Handheld PC

Pinouts

USB-ADP-H DB9 Pin Outs

Pin 2	RS232 Rx
Pin 3	RS232 Tx
Pin 5	Gnd
Pin 8	ExtTrigIn
Pin 9	AnalogOut