

## OPERATION (Continued)

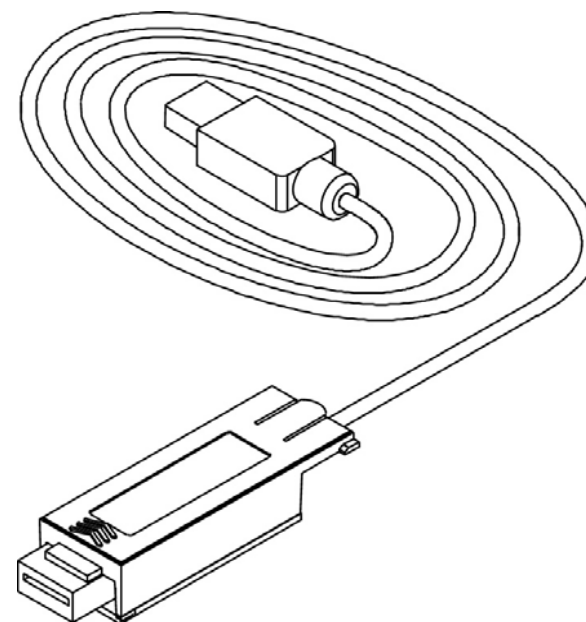
### USB Input

The balance will respond to various commands sent via the interface adapter. The balance will respond only to the following commands when terminated with a CR or CRLF.

<b>?</b>	Prints current weighing unit
<b>0A</b>	Turns Auto-Print off
<b>SA</b>	Auto-Print on stability
<b>CA</b>	Continuous Auto-Print
<b>(n)A</b>	Auto-Print on 1 to 3600 second intervals (n = 1 to 3600)
<b>C</b>	Initiates Span calibration
<b>L</b>	Initiates Linearity calibration
<b>0M</b>	Switch to gram weighing unit
<b>(n)M</b>	Switch to another weighing unit (n = sequence number of unit)*
<b>T</b>	Same as pressing <b>ON-ZERO</b>
<b>V</b>	Print software version
<b>P</b>	Same function as pressing the <b>PRINT</b> key
<b>LE</b>	Prints last error code (e.g. <b>Err 2</b> )
<b>0S</b>	Print unstable data
<b>1S</b>	Print stable data only

\*Some balance models have a limited number of available weighing units. Refer to the user manual of the balance. Attempting to select a weighing unit that is disabled or unavailable may return an Error message.

## USB Interface Kit INSTRUCTION MANUAL



This Interface Kit is for use only with the balance it was intended for. This accessory has been tested and complies with the approvals listed in the Instruction Manual of the balance.



## INTRODUCTION

The USB Interface Kit is a unique solution to the problem of connecting a balance to a computer using a Universal Serial Bus (USB). USB devices are categorized into classes such as disk drives, digital cameras, printers, etc. Balances do not have a commonly used class so the USB interface uses a generic interface based on the RS232 serial standard.

Data sent from the balance to a computer is in USB format. The USB data is directed to a *virtual port*. This port then appears as an RS232 port to the application program.

When sending a command from a computer to the balance, the application program sends a command to the *virtual port* as if it were an RS232 port. The computer then directs the command from the *virtual port* to the computer's USB connector where the balance is connected. The balance receives the USB signal and reacts to the command.

The USB Interface kit includes a CD with the software drivers to create the required *virtual port* on the computer.

## SYSTEM REQUIREMENTS

- PC running Windows 98®, Windows 98SE®, Windows ME®, Windows 2000® or Windows XP®
- Available USB port (Type A, 4-pin, female)

## USB Output (Continued)

Data sent from the balance is in standard ASCII format terminated with a CRLF (carriage return-line feed). The Output string is as follows:

[weight]	11 characters (right justified, with sign)
[space]	1 character
[unit]	5 characters max (left justified)
[space]	1 character
[stability ind.]	1 character: "?" when unstable, blank when stable
[space]	1 character
[legend]	10 characters max: hh:mm:ss (when interval printing).
[CR]	1 character
[LF]	1 character

Output examples: (Note: \* and \_ indicate spaces)

```
*****192.21_g
*****0.01_g_?
*****0.01_g__00:00:00
*****176.30_g_?_00:00:15
*****192.08_g__00:00:30
```

- Manual, Continuous or On-Stable printing

- Unstable reading

- Interval Printing (15 sec interval)

- Unstable reading at 15 seconds

- Stable reading at 30 seconds

## BALANCE SETUP (Continued)

### Setup Definitions

#### **PRINT menu:**

- Stable - On .....Only stable data is output
- Auto Print - Continuous .....Data is output continuously
- Auto Print - On Stable .....Data is automatically output upon stability
- Auto Print - (xx) sec.....Data is output every (xx) seconds
- Auto Print - Off.....Data is only output when PRINT button on balance is pressed

#### **USB menu:**

- USB - Off .....Turns interface off
- Baud, Parity, Handshake .....Set parameters to match printer or computer

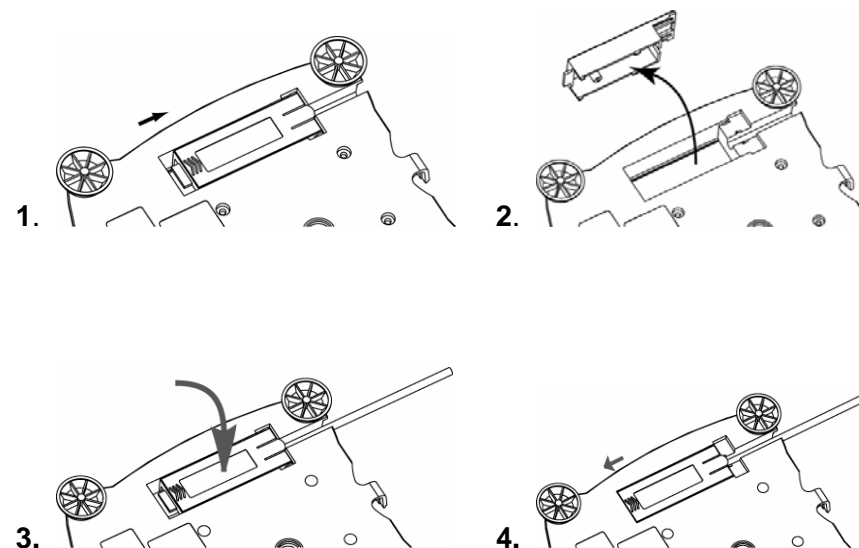
## **OPERATION**

### USB Output

With the interface installed the balance will operate in one of the following three ways.

- USB = on, Auto Print = off, Stable = on or off  
Pressing PRINT will send the display data. If Stable is set on, the balance will wait for a stable reading before sending data.
- USB = on, Auto Print = on, Stable = on or off  
The balance will automatically send data based on the settings in the Menu. If Stable is set on only stable data will be sent.
- USB = off  
The interface is turned off. During battery operation, turning the USB Interface off saves significant power.

## **INTERFACE INSTALLATION**



## **USB CONNECTION**

The USB cable terminates with a 4-pin, male, USB Type A connector.

1. Power on the computer and verify that the USB port is enabled and working properly.
2. Plug the cable's USB connector into the computer's USB connector. Windows® should detect a USB device and the New Hardware Wizard will be initialized.

## VIRTUAL PORT SOFTWARE INSTALLATION

1. Insert the supplied CD into the CD drive.
2. Different versions of Windows® have slightly different steps to load the driver that is on the CD. In all versions the New Hardware Wizard guides you through the required steps to select the driver that is located on the CD.



Example of Windows 2000 Hardware Wizard

3. After clicking **Finish**, the *virtual port* should be ready for use.

Windows® typically adds the virtual port in sequence after the highest number COM port. For example, on PC's equipped with up to 4 COM ports, the virtual port will be COM5.

When using the USB interface with programs that limit the number of COM port designations it may be necessary to assign one of these port numbers to the new virtual port. This can be done in the Port Settings of the Device Manager utility, found in the Windows Control Panel.

## BALANCE SETUP

The balance's interface is preset to communicate using the following settings:

2400 baud, 7 bit, no parity, no handshake

If different settings are desired, it will be necessary to change either the balance settings, or the computer settings.

Upon installation of the interface, the balance will recognize the USB Adapter and add PRINT and USB menus to the structure. Configure the balance to operate as desired. Refer to the User Manual of the balance for assistance in using the menus.

The two supplemental menus are shown below. Default settings are shown in **bold**.

### PRINT

Stable  
 - On  
 - **Off**  
 A-Print  
 - Cont  
 - On.stbl  
 - 5sec  
 - 15sec  
 - 30sec  
 - 60sec  
 - **Off**  
 End  
 - Yes  
 - No

### USB

On-Off  
 - On  
 - **Off**  
 Baud  
 - 600  
 - 1200  
 - **2400**  
 - 4800  
 - 9600  
 - 19200  
 Parity  
 - 7-even  
 - 7-odd  
 - **7-none**  
 - 8-none  
 Handshake  
 - **None**  
 - Xon-Xoff  
 - RTS-CTS  
 End  
 - Yes  
 - No