



Balance Adapter for the Ohaus[®] Scout[®] Pro top-pan balance

(Product No. 3060)

Ranges:

SP202	200.00 g
SP401	400.0 g
SP402	400.00 g
SP601	600.0 g
SP602	600.00 g
SP2001	2,000.0 g
SP4001	4,000.0 g
SP6000	6,000 g
SP6001	6,000.0 g



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Introduction

The *Smart Q* Balance Adapter can be connected to any of the following models of the Ohaus® Scout® Pro Series top-pan loading balances to collect mass data:

<i>Scout Pro Series MODEL No</i>	CAPACITY	READABILITY	Pan size
SPU 202	200 g	0.01 g	120 mm
SPU 401	400 g	0.1 g	120 mm
SPU 402	400 g	0.01 g	120 mm
SPU 601	600 g	0.1 g	165 x 142 mm
SPU 602	600 g	0.01 g	120 mm
SPU 2001	2,000 g	0.1 g	165 x 142 mm
SPU 4001	4,000 g	0.1 g	165 x 142 mm
SPU 6000	6,000 g	1 g	165 x 142 mm
SPU 6001	6,000 g	0.1 g	165 x 142 mm



SP-601, 2001, 4001, 6000, 6001



SP-202, 401, 402, 602

Please refer to the manual (supplied with the Ohaus® Scout® Pro top-pan balance) for instructions on operating the balance.

When the Balance Adapter is fitted to a Scout Pro balance a serial (RS232) menu is added to the balance's menu structure. Once configured to the correct parameters the Scout Pro balance can be used like other *Smart Q* Sensors.

The Balance Adapter has a small microprocessor that converts the output from the Scout Pro balance into an **EASYSSENSE** signal. **EASYSSENSE** will display and log the reading from the balance so preserving the integrity of the data.

Fitting the Balance Adapter to the Scout Pro balance

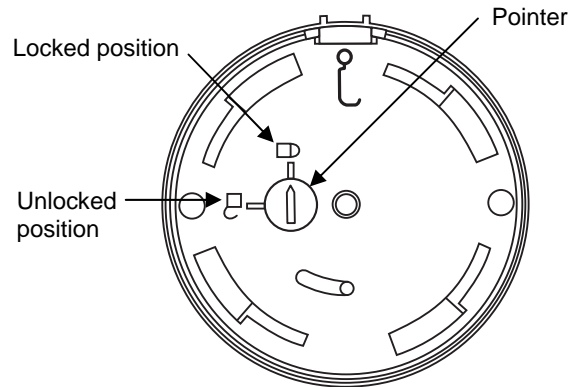
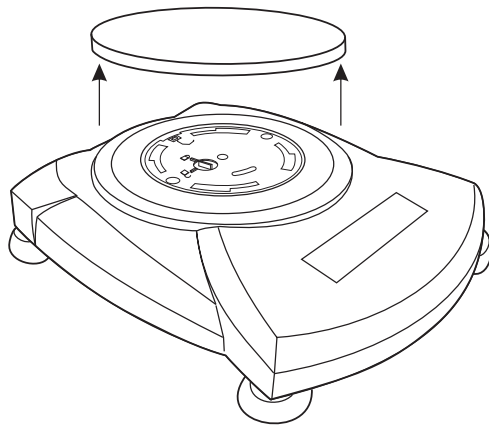
Electrostatic Advice



The Balance Adapter contains electrostatic sensitive components and is shipped in protective anti-static packaging. The back of the Adapter is an exposed circuit board; avoid touching the board and the electronic component pins.

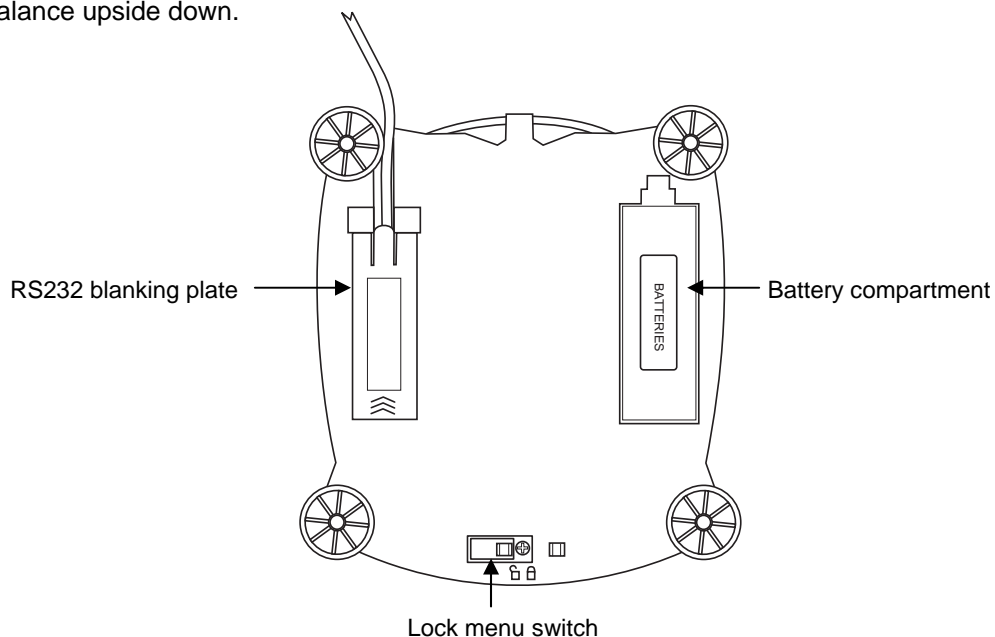
When not in use keep the Adapter in its anti-static packaging and only remove from the packaging immediately prior to installation. The Adapter is best left fitted but if removed should be stored in an anti-static bag. Do not store near strong electrostatic, electromagnetic, magnetic, or radioactive fields.

- Remove the weighing platform if fitted and check the shipping lock is in the locked position (pointing towards the closed padlock mark).

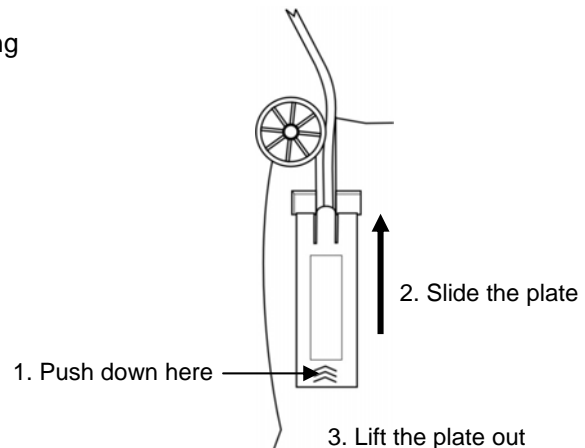


(Under the weighing platform)

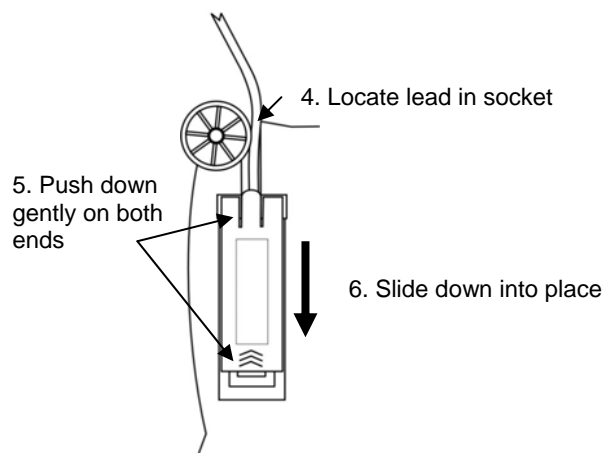
- Unplug the AC adapter from the jack at the rear of the balance (if connected). Turn the balance upside down.



- Remove the RS232 blanking plate by pushing down slightly on the 3 moulded arrows and then sliding the plate away from you. Lift the blanking plate out of the socket.



- Hold the Balance Adapter by the plastic case and place into the RS232 socket (avoid touching the Adapters exposed circuit board). Locate the lead from the Adapter into the groove in the moulding.



- Push down gently on both ends of the Adapter (the moulded arrow and cable end) and slide the Adapter gently towards you (the two small projecting lugs need to slip under the plastic of the case) - there will be slight resistance as the Adapter locks into place.

- Turn the balance the right way up.
- Release the shipping lock (pointing towards open padlock) and put the weighing platform back into place.
- Connect the AC adapter (supplied with the balance) to the jack at the rear of the balance.

To configure the Scout Pro balance to operate with the Balance Adapter

The Scout Pro balance will need to be configured to work with the Balance Adapter. The Scout Pro balance will retain the settings unless they are deliberately altered or the balance is reset.

The communication settings for the Balance Adapter are:

RS232 = ON, Baud = 2400, Data/Parity = 8-none, Handshake = none, Print = Stable Off, A-Print Off.

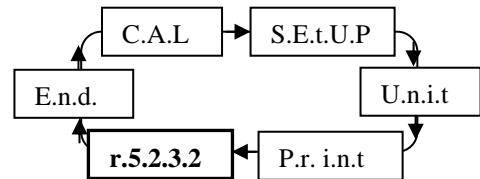
Note: These settings will **not** be lost when the balance is switched off or its power disconnected.

When the Balance Adapter has been fitted, the Scout Pro balance will recognise and add RS232 default parameters to its menu structure. Normally only the PARITY setting needs to be changed for it to work with the Balance Adapter.

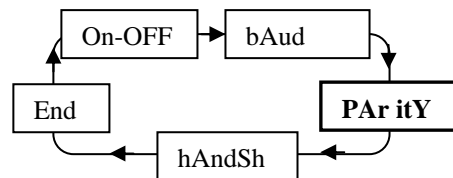
Altering the PARITY setting

1. Check the lock switch (a slide switch found underneath the front of the balance) is in the **off** position (unlocked padlock symbol).
2. Switch the Scout Pro balance **OFF** (press and hold down the ON/ZERO button until it shows OFF).
3. Press and hold the ON/ZERO button down for **5 seconds** plus, release when the display shows **MENU** - it will change to show .C.A.L.

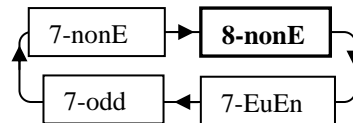
4. Repeatedly press and release the PRINT button until the display shows **r.5.2.3.2**. Press the ON/ZERO button to select.



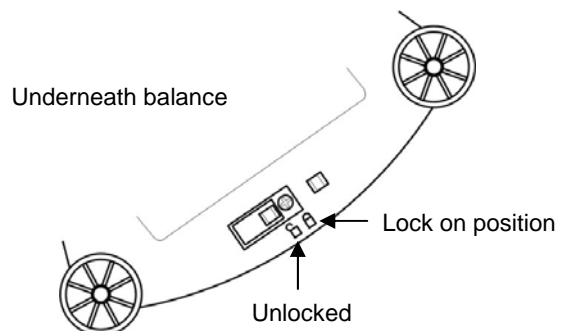
5. Press and release the PRINT button until the display shows **PAR itY**. Press the ON/ZERO button to select.



6. Press the PRINT button, the display will show **8-nonE**. Press the ON/ZERO button to select. The display will change to show PAR ity.



7. Press and release the PRINT button until the display shows **End**. Press the ON/ZERO button to select. The display will show r.5.2.3.2.
8. Press and release the PRINT button, the display will show **E.n.d**. Press the ON/ZERO button to save the settings in the balance.
9. If there are no more changes to be made to the balance's menus then slide the lock switch (*underneath the front of the balance*) to the **On** position (*locked padlock symbol*).



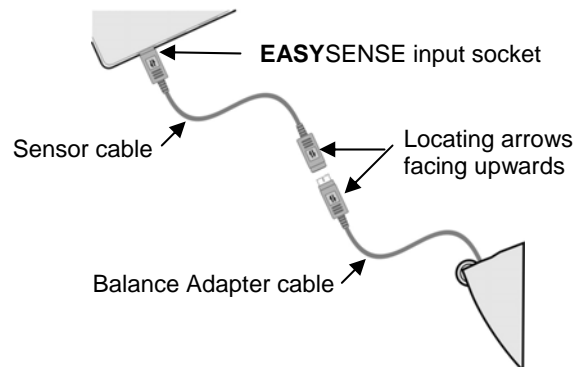
The Scout Pro balance will now be set to work with the Balance Adapter.

When the Balance Adapter has been connect to **EASYSENSE** there will be a delay of up to 20 seconds before full communication is established. During this time the **EASYSENSE** unit may show a false reading e.g. the maximum mass of the balance. Wait **20 seconds**, if the communication protocols have been set correctly the balance will alter to show the correct reading.

If the communications protocols are not set correctly, the **EASYSENSE** unit will not be able to interpret the readings sent by the balance and will continue to output the **maximum mass of the balance** (regardless of the mass being weighed). Hard reset the balance ([see page 8](#)) and then repeat the above to alter the parity settings to 8-none.

Connecting the Adapter

- Make sure the Scout Pro balance is connected to its power supply and is switched ON.
- Connect a sensor cable (supplied with the **EASYSense** unit) to the input socket on the **EASYSense** unit.
- Plug the other end of the sensor cable (male connector) into the socket (female) on the end of the adapter cable (locating arrows on both facing upwards).



When the Adapter has been connect to **EASYSense** there will be a delay of up to 20 seconds before communication is established. Wait **20 seconds** and then select the correct range for the Scout Pro balance model in use.

To set the range


Scout Pro Series MODEL number	CAPACITY/ READABILITY	Smart Q Range
SPU 202	200 g / 0.01 g	SP202 200.00 g
SPU 401	400 g / 0.1 g	SP401 400.0 g
SPU 402	400 g / 0.01 g	SP402 400.00 g
SPU 601	600 g / 0.1 g	SP601 600.0 g
SPU 602	600 g / 0.01 g	SP602 600.00 g
SPU 2001	2,000 g / 0.1 g	SP2001 2000.0 g
SPU 4001	4,000 g / 0.1 g	SP4001 4000.0 g
SPU 6000	6,000 g / 1 g	SP6000 6000 g
SPU 6001	6,000 g / 0.1 g	SP6001 6000.0 g

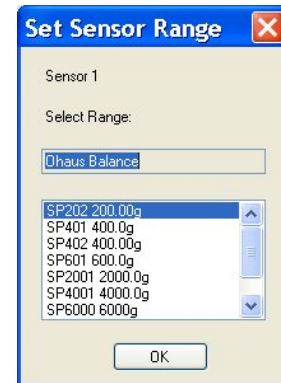
Check the model of your Scout Pro balance (this is normally printed on a label underneath the balance).

You will need to select this model number as a range for the Balance Adapter e.g. for the Scout Pro Model SPU 401 you will need to select the SP401 400.0 g range.

To alter the currently selected range:

- Connect the Balance Adapter to the **EASYSense** unit.

- Start the **EASYSSENSE** program and select one of the logging modes from the Home screen e.g. EasyLog. Select **Sensor Config** from the **Settings** menu.
- Select the Balance Adapter from the list (it will be listed using its current range) and click on the **Change Range** button.
- The current range will be highlighted. Select the required range and click on OK.
- Close Sensor Config. Click on New  and then Finish for the change in range to be detected by the logging option.



The range setting will be retained until changed by the user. With some **EASYSSENSE** units it is possible to change the range from the unit. Please refer to the **EASYSSENSE** unit's user manual.


Using the balance with Adapter after the initial setup

After the Adapter has been fitted, the parity setting altered and the range set to the correct model: -

1. Plug the AC power adapter supplied with the Scout Pro balance into the jack at the rear of the balance.
2. Use a short-press on the **ON/ZERO** button to turn the balance on; the display will scroll to show zero.

***Note:** The Balance Adapter will not be recognised by the **EASYSSENSE** unit unless the balance is both **powered** and switched **on**.*

3. Connect the Balance Adapter to the **EASYSSENSE** unit. Wait for 20 seconds for communication to be established.

***Note:** If an option in the **EASYSSENSE** software e.g. EasyLog, is opened with the Scout Pro balance OFF, the software will behave as if 'No Sensor' is connected. Press the ON/ZERO button on the Scout Pro balance to switch it on, wait 20 seconds, click on New  and then Finish for the sensor to be identified.*

Practical information

The communication settings for the *Smart Q* Balance Adapter are:

RS232 = ON
 Baud = 2400
 Data/Parity = 8-none
 Handshake = none
 Print = Stable Off
 A-Print Off

The Balance Adapter will only operate if the units of measurement set in the Scout Pro balance are in **grams** (g). It will not operate with kg, oz, lb, PC (parts counting), or % weighing turned on.

This Balance Adapter is **not** suitable for use with the Ohaus Scout and Scout II Balances. It can only be used with the models of Scout Pro top-pan balances quoted. It will **not** be possible to modify this Adapter for any new model of Scout Pro top-pan balance that Ohaus may introduce.

This Balance Adapter (Product No. 3060) is **not** suitable for use with an Ohaus Traveler balance; it requires the Product No. 3065 Balance Adapter.

The Balance Adapter uses power from the Scout Pro balance and therefore will not be recognised by the **EASYSense** unit until the balance is both powered and switched on.

Once the *Smart Q* Balance Adapter has been installed to the Scout Pro balance, its Auto-Off mode will no longer be available (Auto-Off is used to automatically turn the balance off in order to save power during battery operation). As a consequence we recommend the balance be powered by its AC power adapter.

After the Adapter has been fitted, the parity settings altered and any other menu changes made to the balance, you can lock out its menu mode by moving the sliding switch (located underneath the front of the balance) to the locked position. This will prevent any accidental change being made to the menus.

The stabilisation time for the Scout Pro Balance is up to 3 seconds so a recording with a time span of less than a minute may not give meaningful results. The fastest speed that data can be captured is 50 Hz (20 ms). If an intersample time of less than 20 milliseconds is selected, then the values obtained will either default to the lowest reading on the scale or the set up will be rejected by the logger/software.

The balance will produce an error code when internal and some external problems occur with the Balance e.g. **Err 2** if it is over or under loaded (if the weighing platform is not fitted). When an error code is displayed then no data will be sent to the **EASYSense** unit, which will continue to report the last value recorded until the error has been corrected.

If the communications protocols are not set correctly, the **EASYSense** unit will not be able to interpret the readings sent by the balance and will output the **maximum mass of the balance** (regardless of the mass being weighed). If this happens hard reset the balance back to its factory conditions (see below) and then change the parity setting to 8-none (see [page 5](#)).

Make sure that if the mass increases during an investigation it will not exceed the capacity of the balance.

If the balance value is lower than the Adapters minimum range then the Adapter will remain fixed at its minimum or last good value until it comes back into range.

Scout Pro balance hard reset

The instructions for resetting the Scout Pro balance back to its factory conditions (available at the time this booklet was produced) are:

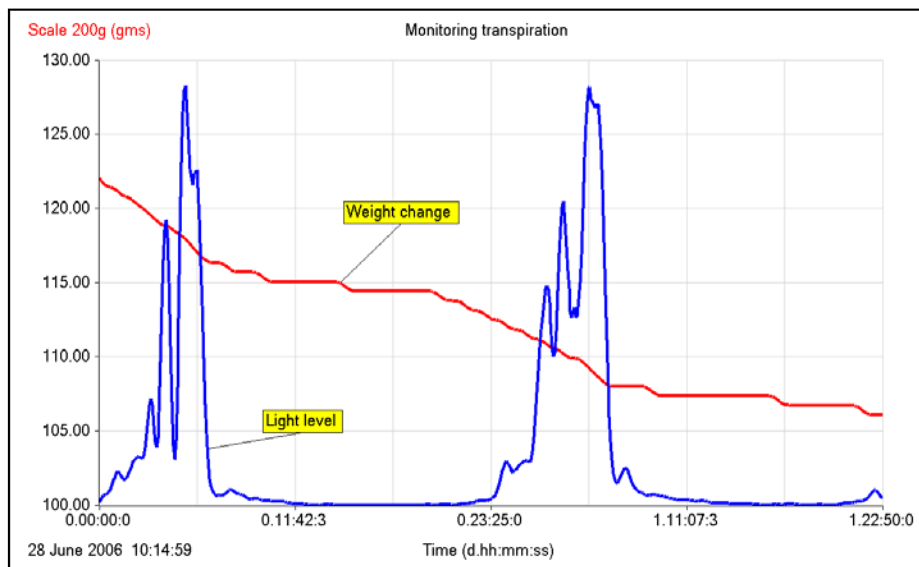
1. Turn the balance **off** (press and hold down the ON/ZERO button for 3 seconds until it shows OFF).
2. Press and hold down the ON/ZERO and PRINT buttons until the display shows **rAMP** then release.
3. Repeatedly press and release the PRINT button until the display shows **rESET**
4. Press and release the ON button. The display will show **no**. Press and release the PRINT button, the display will show **YES**.
5. Press and release the ON button. The display will show **dONE** and the balance will be reset to factory defaults.
6. The display will show **rESET**. Press and release the PRINT button until the display shows **End**.
7. Press and release the ON button. The balance will return to the weigh mode.

After the hard reset, you need to change the parity settings back to 8-none (see [page 5](#)). If the communications protocols are not set correctly the **EASYSense** unit will not be able to

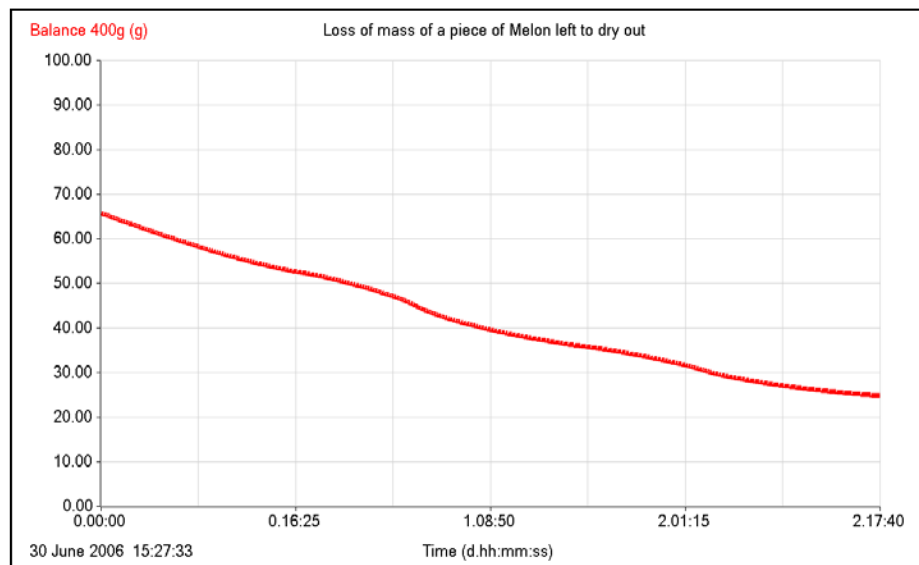
interpret the readings sent by the balance and will output the maximum mass of the balance (regardless of the mass being weighed).

Investigations

- *Measuring reaction rates where a gas is evolved e.g. acid and magnesium*
- *Density and specific gravity investigations e.g. compare mass vs. density, specific gravity of unknown liquids*
- *Loss of mass from a burning spirit lamp/candle when heating water*
- *Increase of mass as a solute is added to a solvent (e.g. adding salt to water)*
- *Force on a conductor in a magnetic field*



- *Monitoring transpiration*



- *Studying evaporation e.g. during crystallisation or loss of mass in storage (fruit in a bowl, plant seeds as they ripen)*

Warranty

All Data Harvest Sensors are warranted to be free from defects in materials and workmanship for a period of 12 months from the date of purchase provided they have been used in accordance with any instructions, under normal laboratory conditions. This warranty does not apply if the Sensor has been damaged by accident or misuse.

In the event of a fault developing within the 12 month period, the Sensor must be returned to Data Harvest for repair or replacement at no expense to the user other than postal charges.

Note: Data Harvest products are designed for **educational** use and are not intended for use in industrial, medical or commercial applications.



WEEE (**W**aste **E**lectrical and **E**lectronic **E**quipment) Legislation

Data Harvest Group Ltd is fully compliant with WEEE legislation and is pleased to provide a disposal service for any of our products when their life expires. Simply return them to us clearly identified as 'life expired' and we will dispose of them for you.