

Model 405 Weighing Scale

User Instructions

1.0 General Information

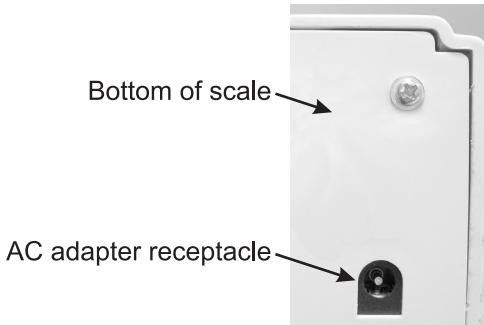
Thank you for purchasing the Model 405 scale. Please read all operating instructions carefully before using and note the following points:

- Avoid lengthy exposure to extreme heat or cold. The scale works best when operated at normal room temperature. Always allow the scale to acclimate to a normal room temperature before use.
- Allow sufficient warm up time. Turn the scale on and wait a few minutes to allow the internal components to stabilize before calibrating or weighing.
- The cleaner the environment the better. Dust, dirt, moisture, vibration, air currents and proximity to other electronic equipment can cause an adverse effect on the reliability and accuracy of your scale. Only use on a stable, vibration free surface.
- Handle with care. Gently apply all items to be weighed onto the weighing platform. Although this scale is designed to be quite durable, try to avoid rough treatment as this may permanently damage the internal sensor.
- Place the item to be weighed on the platform and after the stable weight is displayed, remove the item immediately. This will aid in the longevity and accuracy of this weighing instrument.
- Do not operate near an in-use cell phone, radio, computer or other electronic device as these devices emit radio frequency (RF) and may cause unstable scale readings.
- Level the scale by looking at the bubble level under the display and adjusting the feet on the bottom of the scale.
- The scale may be powered by an AC adapter or a 6-volt rechargeable battery. When **Lo.bAt** is flashes on the display, the battery is low. Please recharge battery immediately.

2.0 Getting started

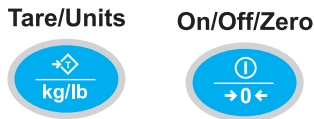
Charge the battery overnight with the AC adapter before using the scale or use the AC adapter to power the unit. The AC adapter plugs into a receptacle on the base of the scale.

The AC adapter receptacle is shown below.



3.0 Key Functions

There are two keys on the front panel; the **Tare/Units** key and the **On/Off/Zero** key. See illustration below.



Front Panel Keys

On/Off/Zero key

The **On/Off/Zero** key is used to turn the scale on or off and to zero the scale.

ON/OFF Function

When scale is off, press the **On/Off/Zero** key to turn on the scale. The scale will perform a start-up routine, show the working voltage **x.x Udc**, display full capacity **F6.000kg** or **F15.000kg**, and the scale will try to get a zero-point and display zero reading. The scale should have no more than 20% of full scale capacity on the weighing platform at power-up to achieve a proper zero-point.

Press the **On/Off/Zero** key for more than 5 seconds to turn the scale on or off.

ZERO Function

When the scale is on, press the **On/Off/Zero** key for less than 5 seconds, to zero the scale. Zero range is +5% of full capacity. Zero function is only activated when there is no motion on the scale.

Pressing the **On/Off/Zero** key will also clear the active tare weight. When the scale is at zero the *ZERO* annunciator on the left of the display, will be lit and the *NET* annunciator will be off.

The scale will not zero if the display is beyond +5% of full capacity. The display will show **0-----** or **0_____**, then return to the previous weight reading.

Tare /Unit Key

Tare Function

Press the **Tare/Units** key for less than 5 seconds to tare the scale.

Tare range for this scale is up to 102% of full capacity. Wait to tare the scale until it is stable. When a tare weight is active, the *NET* annunciator is lit.

Unit Function

Press the **Tare/Units** key for more than 5 seconds to change the unit of measure. Choose from lb, kg, g, oz, lb.oz,

4.0 Scale Operation

Turning on the scale:

Be sure the battery is charged or that the AC adapter is plugged in.

Press the **On/Off/Zero** key on the front panel to turn the scale on. See illustration above.

When the startup routine is finished, the scale is ready.

Simple weighing:

Empty the scale and press the **On/Off/Zero** key if the display is not at **0**.

Place item(s) to be weighed on the scale. Weight is displayed.

Remove item and repeat process.

Tare/Net weighing:

Empty the scale and press the **On/Off/Zero** key if the display is not at **0**.

Place container to be tared on the scale and press the **Tare/Units** key for less than five seconds. *Net* annunciator lights when a tare is active.

Place item(s) to be weighed in the container. Net weight is displayed.

Remove and repeat process.

Removing a tare:

To remove an active tare weight, empty the scale, wait for the scale to stabilize. The unit of measure annunciator will glow steady when the scale is stable or blink while motion occurs. Press the **Tare/Units** or **On/Off/Zero** key to remove the active tare.

Changing unit of measure:

Press and hold the **Tare/Units** key for five seconds to change the unit of measure. Repeat to change to the next unit of measure.

Turning the scale off:

Press and hold the **On/Off/Zero** key for five seconds.

5.0 Calibration

This scale comes with the calibration jumper on the PC board in the CALIBRATE position. The calibration instructions below are written for this jumper condition.

If the user wants to lock the calibration they must access the PC board and move the jumper. See the next section [6.0 Accessing the PC board and Locking/Unlocking Calibration on page 6](#) for instructions.

1. Be sure to have the proper test weights on hand. For Model 405-6 you should have 6 kg or 12 lb weights. For Model 405-15, you should have 15 kg or 30 lb weights.
2. Remove all weight from the scale platform and be sure the scale is turned off.
3. Press and hold the **Tare/Units** key, and then press the **On/Off/Zero** key until...
CAL-0 appears.
4. Release the two buttons.
5. Press the **On/Off/Zero** key...
0 in **CAL-0** will flash briefly, then **CAL-F** is displayed.
6. Press the **Tare/Units** key to choose the unit of standard weight in calibration...
The blue annunciator will light next to the active unit of measure.
7. Load full capacity on the scale platform. That is 6 kg or /12 lb for Model 405-6, or 15 kg / 30 lb for Model 405-15. Press the **On/Off/Zero** key...
F in **CAL-F** will flash briefly then **CAL-0** appears again.
8. Remove the weight from the scale platform, and press the **On/Off/Zero** key...
0 in **CAL-0** flashes until calibration is complete.
9. The scale will restart in normal weighing mode. If **CAL.Er** is displayed, there is an error in calibration and you need to perform steps 1 through 8 again.
10. In steps 3 through 5, press the **On/Off/Zero** key repeatedly to abort the calibration procedure.

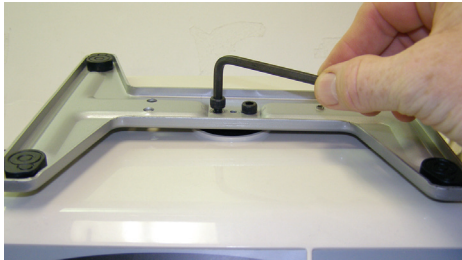
6.0 Accessing the PC board and Locking/Unlocking Calibration

To lock or unlock the calibration mode for the scale you must access the PC board and move a jumper. Follow these steps:

1. Remove the scale platform.



2. Use a 5mm hex wrench to remove the two screws holding the platform support to the weight sensor.



3. Turn the scale over and remove the four screws in the corner of the base.



4. Turn the scale over again and carefully remove the top case from the base. Figure 1.1 shows the current main board and the calibration jumper (SWCAL) circled. Figure 1.2 shows the older version of the main board and the calibration jumper (JP1). The jumper is shown inside the red oval. The oldest version of the main board is shown in Figure 1.3.

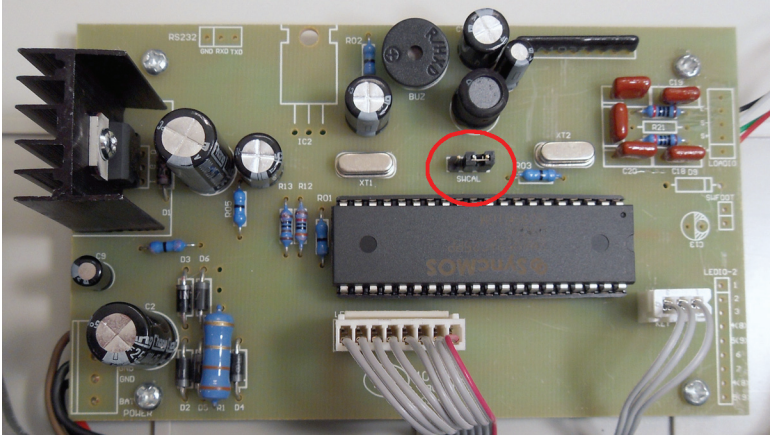


Figure 1.1 Current main PC board with jumper circled

Figure 1.1 shows the jumper in the calibration unlocked position. Move the jumper to the other position to lock calibration.

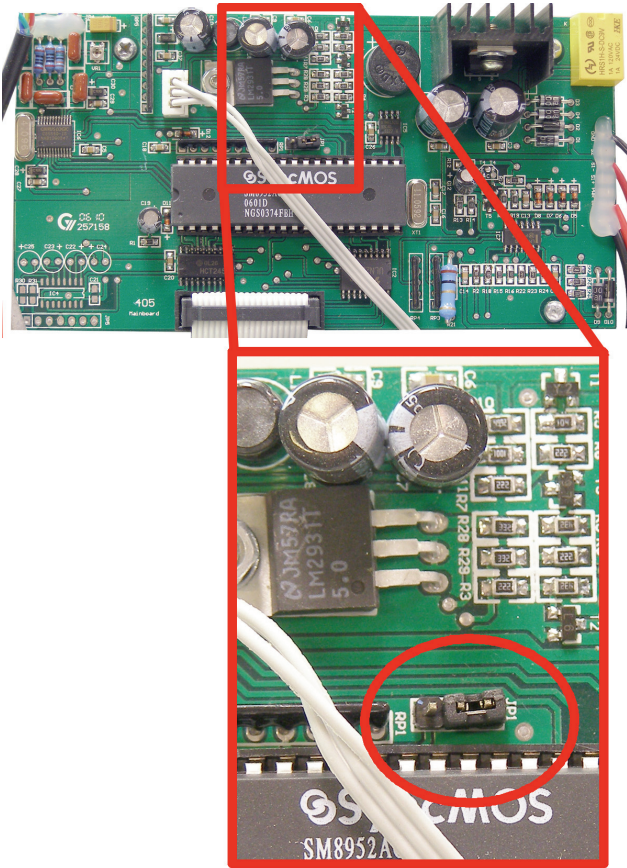


Figure 1.2 Older version of the main PC board

The jumper shown in Figure 1.2 is in the 'calibration unlocked' position. The scale can be calibrated with the jumper on the two pins on the right side. Pull the jumper up and move it to the left two pins to lock calibration

There is an older style PC board your unit may have. It is shown below.

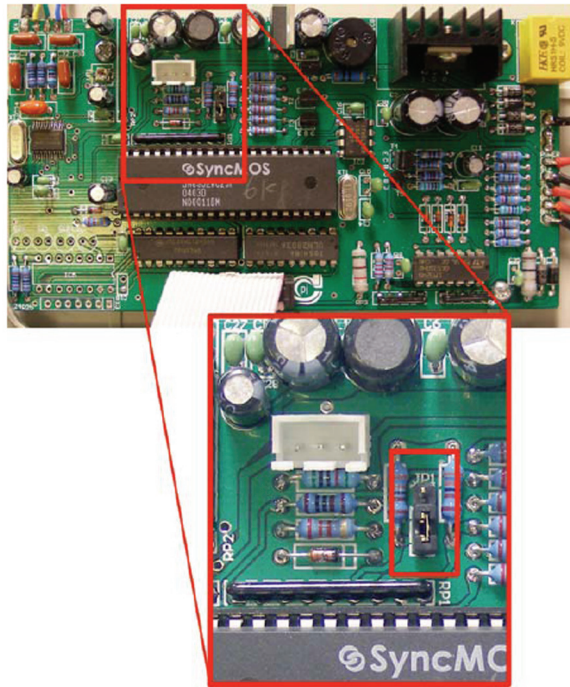


Figure 1.3 Oldest style main PC board

The jumper shown in Figure 1.3 is inside the small red rectangle. It is shown in the 'calibration locked' position. The scale cannot be calibrated with the jumper on the two bottom pins. Pull the jumper up and move it to the top two pins to unlock calibration

5. Reverse the disassembly procedure to reassemble the scale.

7.0 Setting the AUTO-OFF Function

You can set the amount of time the scale is inactive before it shuts down to save battery power. Follow these steps:

1. Turn the scale on. Press and hold down the **Tare/Units** key and the **On/Off/Zero** key for more than 5 seconds until...
A.oFF.x” is displayed. **X** is the variable time in minutes. It can be set from 0 to 9 minutes. If **X=0**, the AUTO-OFF function is disabled.
2. To set the value of **X**, press the **Tare/Units** key to scroll through the choices.
3. Press the **On/Off/Zero** key to accept the setting and restart the scale.

8.0 Screen Messages

0 _____ : Power-on zero-point is more than 20% of full capacity above the calibration zero-point when scale is turned on.

OR

The weight reading is more than 5% of full capacity above the power-on zero-point when you press the **On/Off/Zero** key;

0 _____ : Power-on zero-point is more than 20% of full capacity below the calibration zero-point when scale is turned on.

OR

The weight reading is more than 5% of full capacity below the power-on zero-point when you press the **On/Off/Zero** key;

_____ : the current weight is less than -25% of full capacity;

_____ : the current weight is over 102% of full capacity;

CAL-0: Zero point at calibration;

CAL-F: Full capacity at calibration;

CAL-Er: Calibration error;

A.ch.E r: Analog channel error;

EEP. Er: EEPROM accessing error or data in EEPROM is in error or not in their normal range;

Lo.bAt: The voltage is below 5.7V ($\pm 0.1V$)

x.x Udc: The voltage is x.xV ($\pm 0.1V$)

Specifications

1. Capacity and division:

405-6: 6.000kg X0.001kg / 12.000lb x 0.002lb

405-15: 15.000kg x 0.002kg / 30.000lb x 0.005lb

2. Display: seven red, 0.56", seven-segment, LED digits display with eight LED diodes: ZERO, NET, AC, CHG, LB, KG, G, OZ

Below are examples of the display showing 5.340kg in all the possible units of measure.

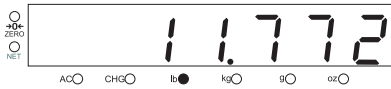


Figure 1.4 Unit: lb



Figure 1.5 Unit: kg



Figure 1.6 Unit: g

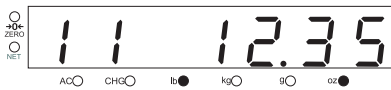


Figure 1.7 Unit: lb oz



Figure 1.8 Unit: oz

3. Working temperature: 5°C- 35°C
4. Power supply: 12Vdc, 600mA AC adapter, with positive center or 6V4AH rechargeable battery.

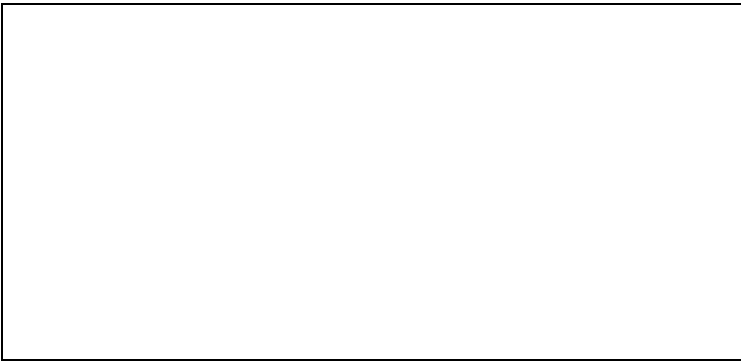
Note: *When the rechargeable battery is full recharged, the scale can work for 20 hours continuously.*

When the power supply is lower than 5.4V ($\pm 0.1V$), the scale will be turned off automatically.

*When the power supply is lower than 5.7V ($\pm 0.1V$) but over 5.4V ($\pm 0.1V$), the scale will display **Lo.bAT** and the other current display alternatively.*

If AC adapter is used to charge battery or to power scale, the rocker switch must be placed in the ON position.

5. Working current: < 150mA
6. Recharging current: < 400mA



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