YELLOW JACKET®

Economy Charging Scale

Instruction and Operation Manual

Model 68860

Specifications

Capacity	100 kilograms (220 Pounds)
Accuracy	0.5% of Reading +/- 1 Least Significant Digit
Resolution	2g, 0.005 lbs., 0.1 oz.
Power	4 x 1.5V 'AAA' Alkaline Batteries (6 VDC)
Battery Life	30 hours continuous use
Operating Temperature	0°C – 60°C (32°F – 140°F)
Weight	2.5 kg (5.5 lbs.)
Dimensions	26.7 cm x 26.7 cm x 4.5 cm (10.5" x 10.5" x 1.75")

NOTE: To prevent damage, never exceed the rated capacity of the 68860.

Over Range Indication

If the weight applied to the weighing platform exceeds the maximum capacity of the 68860 (100 kg), a single "1" will be shown on the left side of the display. To prevent damage to the load cell, immediately remove the weight from the platform.

Battery Level Indicator

The battery level indicator shows the relative strength of the batteries. Full power is indicated by four bars. As the batteries are depleted, the number of bars displayed decreases, until no bars are left. At this point, it is necessary to replace the batteries. If the battery power drops to the point where the 68860 can no longer function accurately, the alarm will beep 20 times and the power will turn off automatically. When the batteries are replaced, and the scale is turned back on, the 68860 will resume operation with all previous setting intact.

IMPORTANT: TO PREVENT DAMAGE TO THE 68860, CAREFULLY OBSERVE BATTERY POLARITY AS MARKED INSIDE THE BATTERY COMPARTMENT. DO NOT LEAVE DEAD BATTERIES INSIDE THE CONTROL BOX. REMOVE BATTERIES IF THE 68860 IS NOT TO BE USED FOR AN EXTENDED PERIOD OF TIME.

Quick Start

To operate the 68860 as a basic weigh scale, place the weighing platform on a firm, level surface and then perform the following steps:

1. If using a container to hold the objects being measured, place it empty on the center of the platform.
2. Press the "ZERO" key to "zero-out" the scale. The display will read zero.
3. Place the material to measure in the container or on the center of the platform.
4. Read the weight on the display.
5. A positive number indicates the applied weight is greater than the zero value. A negative number indicates the applied weight is less than the zero value.
6. Repeat steps 1 through 5 as necessary.
7. Turn the 68860 off by pressing and holding the "ON/OFF" key down until the scale turns off.
8. To conserve battery life, the 68860 will turn itself off after 30 minutes of inactivity, unless it is currently running a program (see programming section below). The last state of the 68860 will be restored upon power-up.

NOTE: When using the 68860, ensure the coiled cord does not touch the top of the weighing platform, or inaccuracies may result.

HOLD Mode

A special feature of the 68860 allows the emptying or replacing bins or containers used for weighing without affecting the weight shown on the display. This Hold Mode may be used as follows:

1. Allow load to settle until display is steady.
2. Press the "HOLD" key. The **HOLD** indicator will turn on and the current weight is now locked on the display.
3. Remove, empty, or replace objects, bins, or containers on the platform.
4. Wait 5 seconds for the new load to stabilize.
5. Press the "HOLD" key. The **HOLD** indicator will turn off. Measurements will continue from where they left off prior to initiating Hold Mode.

Programming

With the 68860, a programmable threshold weight will sound an alarm. The alarm will sound when the displayed weight (either positive for increasing weight, or negative for decreasing weight) equals the programmed weight. To program the alarm, perform the following steps:

1. If measuring decreasing weight, place the objects or container with the objects or material that will be removed on the weighing platform.
2. Press the "SET" key to start the SET Mode, indicated by the **SET** annunciator on the LCD display.
3. Press and/or hold the "UP" or "DOWN" keys to set the desired alarm set point. To change the set point faster, press the "FAST" key. This will activate the **FAST SET** mode which will change the set point 10x faster than normal. Press the "FAST" key again to return to the normal speed **SET** mode.
4. Press the "RUN/STOP" key. The display will automatically change to zero and the **RUN** indicator will show to indicate that the program is running.

Programming, cont.

5. When the applied (or removed) weight exceeds the programmed amount, the alarm will sound and the **DONE** indicator will flash on the display.
6. Press any key to stop the alarm.
7. To cancel the RUN mode at any time, press the "RUN/STOP" key.

NOTE: The RUN mode can only be initiated from the SET mode. If you cancel the RUN mode by pressing the "RUN/STOP" key and wish to RUN again, press the "SET" key (the previous set point will be restored) followed by the "RUN/STOP" key again. The display will be zeroed when the program restarts. You may program the SET mode without starting the RUN mode by pressing the "SET" key after setting the program set point. The new value will be saved until next time the SET mode is activated. The "HOLD" key can be used during the RUN mode similarly as described in the HOLD MODE section.

Tank Capacity Mode

It is often convenient to know the relative amount of material (i.e. refrigerant) remaining in a container (tank). The Tank Capacity Mode allows a continuous display of the percentage of material remaining in a tank. In order to compute the percentage accurately, the 68860 must be trained to know the weights of an empty and full tank. To train the 68860 Tank Capacity Mode, perform the following steps:

1. While holding the "ZERO" key down, press the "SET" key. The **SET TANK** indicator will turn on, and **OFF** will show on the display. This indicates that the Tank Capacity Mode is currently off.
2. Turn the Tank Capacity Mode on by pressing the "UP" key. The display will show **ON**, and the Alternate Numeric Display and Percent Indicator will turn on.
3. Press the "SET" key to proceed to the first step of training. **0%** will flash in the Alternate Numeric Display indicating that the weight of an empty container must be registered.
4. Apply an empty container (or a load representing the weight of an empty container) on the platform. Wait 5 seconds for the load to stabilize, then press the "SET" key. **100%** will flash in the Alternate Numeric Display indicating that the weight of a full container must be registered.
5. Apply a full container (or a load representing the weight of a full container) on the platform. Wait 5 seconds for the load to stabilize, then press the "SET" key. This completes the training process, and the **SET TANK** indicator will turn off.
6. From this point forward, the Alternate Numeric Display will show the percent of material remaining in the container from 0% to 100%.

NOTE: The 100% weight must be larger than the 0% weight by at least 200g (0.44 lb). If not, **"Err"** will show on the Alternate Numeric Display. To clear the error, retrain as above using a 100% weight that is at least 200g larger than the 0% weight. During training, the ZERO key may be used to assist in setting the 0% and 100% values. This will have no effect on the training, as the Tank Capacity Mode relies on absolute, not relative, weights.

Turning Tank Capacity Mode Off

Perform the following steps to turn the Tank Capacity Mode Off:
1. While holding the "ZERO" key down, press the "SET" key. The **SET TANK** indicator will turn on, and ON will show on the display. This indicates that the Tank Capacity Mode is currently on.
2. Turn the Tank Capacity Mode off by pressing the "DOWN" key. The display will show **OFF**, and the Alternate Numeric Display will turn off.
3. Press the "RUN/STOP" key to return to normal operation.

Turning Tank Capacity Mode On without Retraining

Turning the Tank Capacity Mode On without Re-training
The Tank Capacity Mode can be turned back on without retraining. The 68860 will remember the previous 0% and 100% set points until the unit is re-trained as above. To turn the Tank Capacity Mode on without re-training, perform the following steps:
1. While holding the "ZERO" key down, press the "SET" key. The **SET TANK** indicator will turn on, and **OFF** will show on the display. This indicates that the Tank Capacity Mode is currently off.
2. Turn the Tank Capacity Mode on by pressing the "UP" key . The display will show **ON**, and the Alternate Numeric Display and Percent Indicator will turn on.
3. Press the "RUN/STOP" key to return to normal operation.

HVAC Service

Because of its high stability and accuracy, the 68860 is ideal for automotive, commercial, and residential A/C refrigerant charging and recovery. Its high resolution also allows accurate critical charging of small refrigeration systems such as commercial freezers. To use the 68860 for refrigerant charging, perform the following steps:
1. Press the "UNITS" key to set the desired display units.
2. If desired, set up the Tank Capacity Mode as described in the Tank Capacity Mode section. This will allow you to know at any time the percent of refrigerant remaining in the refrigerant cylinder.
3. Carefully set the refrigerant cylinder on the weighing platform.
4. Attach the cylinder to the charging manifold via a utility hose. Open the cylinder valve and purge air from the hose.
5. Program the desired refrigerant charge weight as described in the Programming section. Activate the program by pressing the "RUN/STOP" key.
6. Open the manifold valve(s).
7. The display will indicate the weight charged as negative, indicating refrigerant is being removed from the charging cylinder.
8. If the refrigerant cylinder empties while charging:
    - Close all valves.
    - Press the "HOLD" key to "freeze" the display (as described in the Hold Mode Section).
    - Replace the empty refrigerant cylinder with a full one. Attach and purge hoses.
    - Press the "HOLD" key to exit the Hold Mode.
    - Open manifold valve(s). Charging will continue from where it left off.
9. When charging is complete, the alarm will sound. Close all valves and press any key to cancel the alarm.
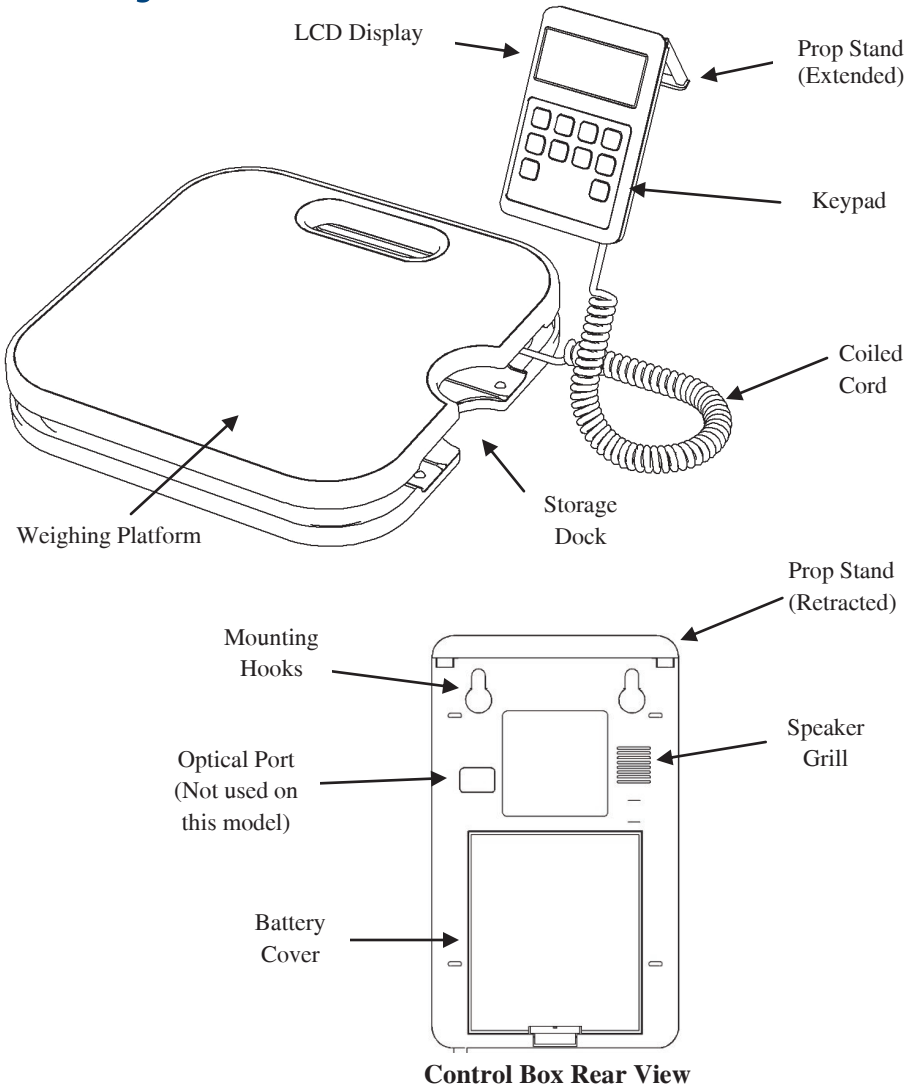
Sound

As delivered from the factory, the 68860 beeps when turning on and when keys are pressed. This sound can be muted as follows:
1. Make sure the power is on.
2. While holding the "ZERO" key, press the "ON/OFF" key. The musical symbol on the left of the display will turn off to indicate that the sound has been muted.
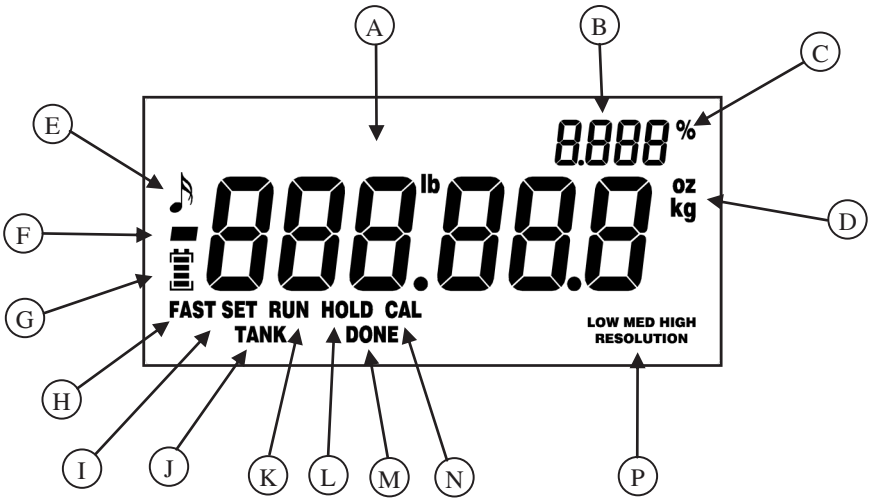
Repeat steps 1 and 2 to turn the sound back on.

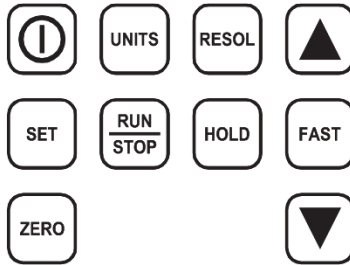**NOTE:** The Mute function only affects the power-on and key-press beeps. It has no effect on the alarm.

Parts Diagram

LCD Display

Prop Stand (Extended)

Keypad

Coiled Cord

Weighing Platform

Storage Dock

Prop Stand (Retracted)

Mounting Hooks

Speaker Grill

Optical Port (Not used on this model)

Battery Cover

Control Box Rear View

LCD Display

Item	Function
A	Main Numeric Display
B	Alternate Numeric Display
C	Tank Capacity Percent Indication
D	Units Indicators
E	Sound Mute Indicator
F	"Floating" Negative Indicator (indicates weight removed from platform)
G	Battery Level Indicator
H	Fast Adjustment Indicator
I	Set Mode Indicator
J	Tank Capacity Mode Indicator
K	Run Mode Indicator
L	Hold Mode Indicator
M	Program Complete Indicator
N	Calibration Mode Indicator
P	Resolution Indicator

Keypad

⏻	Press for power-on, press/hold for power off
UNITS	Press to cycle through displayed units – kilograms, pounds, pounds and ounces, ounces.
RESOL	Press to select low(0.5oz/0.020lb/10g), medium (0.2oz/0.010lb/5g), or high(0.1oz/0.005lb/2g) display resolution
ZERO	Press to "zero-out" current reading on display
▲ ▼	Use to adjust various settings and programming values
FAST	For faster adjustments. Used in conjunction with ▲ and ▼
HOLD	"Freezes" display
SET	Starts programming mode
RUN STOP	Activates/Deactivates stored program

Warranty

YELLOW JACKET electronic products are covered by a one year warranty from the date of sale. All electronic products **must** be returned to Ritchie Engineering. If the product is found to be defective, Ritchie Engineering will repair or replace at our discretion. Over-the-counter exchanges will not be authorized.