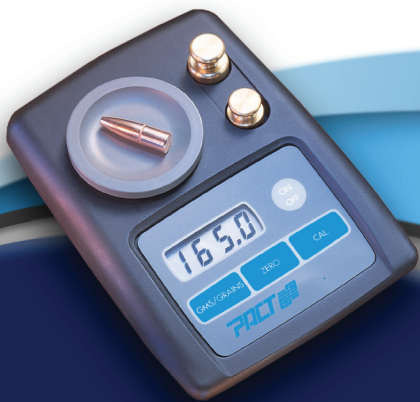


FACT

BBKII ELECTRONIC POWDER SCALE



SAFETY AND OPERATING INSTRUCTIONS

IMPORTANT:

Like any scale, you control the accuracy of your PACT BBK Scale. Before using the scale please read this instruction manual carefully to fully learn how to safely operate the scale. It is up to you to Zero and Calibrate the unit properly and regularly verify the accuracy of the scale with your check weights. If you fail to do this you will find yourself in a position of having loaded an incorrect amount of powder. **If this occurs your gun may blow up sending sharp shards of metal into your eyes blinding you and those around you.** Please pay attention to what you are doing and always wear eye protection. If you have read these instructions and still do not understand some operation please don't hesitate to call us at 800-722-8462. A technician will be more than happy assist you.

Introduction:

Your PACT BBK Scale is based around a Strain Gage Load Cell. This is a mature technology that is used in all but the most expensive electronic laboratory analytical balances. The load cell is energized with an electrical current. As you add weight it bends very slightly, a few thousandths of an inch at the most. This tiny bend changes the electrical characteristics of the strain gage producing a very small change in its output. We amplify this signal up to a measurable level then convert it from an analog to digital value that the computer inside your scale can read and convert to a weight.

If the computer displayed the actual readings it was receiving from the load cell you would find the scale all but unusable. There are two reasons for this; first of all, because of the speed that this electronic stuff whirls around, the scale picks up every little vibration and puff of wind in the room and instantly amplifies it. Secondly, in the great scheme of things, a tenth of a grain, one seventy thousandth of a pound, is a real small thing to pin down and measure.

The computer in your scale acts as a filter deciding, in fractions of a second, whether or not to allow a given reading onto the display. The software techniques used to do this are really more art than science. This is why you will find that electronic scales, while they share a common base level of technology, vary quite a bit in their performance. The goal is to provide a display that is both very stable when the weight is stable, yet changes very quickly when the weight changes, all the while filtering out wind and repetitive vibrations. We think you'll be extremely satisfied with the results of our efforts in this area.

Having done all this neat software stuff you may wonder why we make such a big deal out of alerting you to possible errors. GIGO, Garbage In Garbage Out. The computer can't do any better than the load cell. If the load cell tells the computer that 100.3 grains is 100.3 one time and 100.1 two minutes later the computer will accurately report what the load cell tells it, even when it's wrong.

WARNING

*This digital scale is for use with smokeless powders only. Do not use with black powder - the type used in muzzle loading firearms. **If black powder should come in contact with an electrical spark an explosion might occur killing or maiming you and everyone around you.***

PRECAUTIONS

Digital scales are very reliable devices but it is possible for failures to occur that may cause an inaccurate reading:

- **Changes in temperature will affect calibration accuracy.** If the temperature --changes more then a couple of degrees you must re-calibrate the BBK scale. Your scale--should be allowed to stabilize for 20 to 30 minutes then re-calibrated prior to use when taken from one location to another where the temperature is different.
- **Changes in scale location or level condition** will affect calibration accuracy.
- You must be sure to **center the calibration weights on the platen.** Failure to do so will result in an inaccurate calibration.
- Jarring of the scale during operation.
- Use only the two calibration weights supplied with the scale when running the calibration procedure. Use of other kinds of weights will result in inaccurate readings.
- Accuracy of the weights is critical to the accuracy of the scale. Weights should be kept clean and carefully stored. If weights are dropped or damaged in any way they should be inspected ---against known standards to verify their accuracy. This is best performed by a qualified PACT ---technician.
- Remove the battery if your not going to be using the scale in the next couple of days.
- If static build-up on the Scale is noticed wipe the Scale with an anti static towelette (dryer sheet) or any readily available anti static spray. First spray a small quantity on a clean soft cloth then wipe the scale Do not allow the spray to get into the mechanism.
- If powder should somehow get inside the unit stop operating the unit immediately and do not use the scale until it is serviced. Contact PACT for customer service information.

This instrument may be serviced only by a PACT technician familiar with this model scale. The address and phone number for repair and service is shown on the back cover.

NOTE: Do not try to trickle powder in from zero weight. The Auto Zero will try to get rid of the first .5 grain causing the scale to read incorrectly. You must have at least .5 grains displayed on the scale before trickling to disable the AutoTare.

GENERAL INFORMATION

Carefully unpack the scale. Look for and identify the following items:

- Scale
- Special Powder Pan
- Two (2) calibration weights

The Scale was shipped in protective packaging which should be saved and used for transporting the scale. This packaging is also recommended or long-term storage of the unit.

IMPORTANT: Treat the Scale like the delicate instrument that it is. The Scale is physically very fragile and the load cell will be **permanently damaged** by:

- Dropping the Scale.
- Pulling up on the platen in such a way that it binds in the load cell.
- Introducing a violent physical shock to the scale.

Take care of the scale and it will provide years of trouble-free operation.

DISPLAY PANEL DESCRIPTION

The GMS/GRAINS button will switch the scale from grains to grams and back again. When the scale is in the grains mode the display reads 00.0. In the grams mode it will read $_{GM}00.00$. Note that the "GM" will blink to alert you to the fact that you are in the grams mode. See photos #1 and #2.

NOTE: It is your responsibility to make certain that the scale display is properly set to the weight unit -either grains or grams- that you are using.

The ZERO button is used to re-zero the scale. For example, to weigh powder in a powder pan you would first place an empty pan on the scale platen and gently push the ZERO button to re-zero the Scale. This will automatically subtract the weight of the pan from the next weighing.

The "CAL" button is used to calibrate the scale. Proper and timely calibration is absolutely essential to good scale operation. The procedure only takes a minute or two and should be performed frequently to ensure accurate weighing. This procedure is fully described in detail in the Calibration Section.

The ON/OFF button is used for turning the display panel on and off.

SET-UP

Your scale is powered by a 9 volt Alkaline battery.

NOTE: When you install the battery in your PACT BBK Scale make sure that the battery lead (the wires) are under the battery. Do not allow them into the scale mechanism. When you remove the battery resist the temptation to bang the scale against your hand to "pop" the battery out. This may damage or destroy the loadcell.

When you turn the scale on it will briefly display "teSt". The scale will then Zero itself and the display will read 00.0 or $_{GM}00.00$. Let the scale stabilize for 20 to 30 minutes to recover from getting banged around in shipping.

NOTE: Whenever the readings are stable the decimal point will be solid. When the readings are changing the decimal point will blink.



Photo #1

When you set up your scale, remember to choose an area with a stable temperature and that's free from drafts. To avoid inaccurate readings due to drafts do not set the scale near open windows or air conditioning or heater vents. Make sure the area is free from vibrations and that the work surface is level.

NOTE: The RF emissions from portable tele-phones will drive your BBK scale nuts.

In nominal use your scale reading will drift a little. This is caused by changes in temperature or wind drafts and is perfectly OK.

NOTE: Whenever the Scale stabilizes within .5 grains of your Zero weight it will Auto Zero itself. This function is deactivated when the scale is more than $\pm .5$ Grains from your last Zero weight. When the scale drifts more than ± 0.5 grains from zero it will warn you by flashing alternately " " and the weight. This tells you to remove the material you are weighing, replace the empty pan if appropriate, and gently press the ZERO button to re-zero the scale.

IMPORTANT: As with any scale you control the accuracy of your PACT Scale. It is up to you to Zero and Calibrate the scale properly. It is up to you to continually verify the accuracy of the Scale with the check weights. Remember a scale with an improper calibration will cause inaccurate charge weights which may exceed the maximum recommended load.



Photo #2

TO USE THE SCALE

WEIGHING: If the display panel is blank press the ON/OFF button. This will turn the display panel on. Put the scale in Grams or Grains mode, whichever is appropriate. Place the material to be weighed on the platen and the weight will be displayed on the panel. The PACT Scale reads, and is accurate to, plus or minus tenth (.1) of a grain increments up to 300 grains and plus or minus two tenths (.2) to 750 grains.

NOTE: The BBK is very sensitive to off center loading. You must make sure to center the material to be weighed on the platen. We recommend you only use our special powder pan. Make sure you always center the calibration weights on the platen.

RE-ZEROING: When weighing something that must be held in a container, like gun powder, zeroing enables the scale to automatically subtract the weight of the container. Only the net weight of the powder in the container will be displayed once the weight of the container has been subtracted through re-zeroing.

TO RE-ZERO: Gently press ZERO to obtain a zero reading. Make sure there is no weight on the platen. Place an empty powder pan on the platen. Press ZERO again. The display will read "00.0" and the weight of the powder pan will be stored in the Scale memory. It will automatically be subtracted from the next weighing. Add the powder to the pan. As powder is added its' net weight will be displayed.

NOTE: Do not trickle powder into the pan from zero weight. The AUTO ZERO function will try to eliminate the first 0.5 grains causing the scale to read incorrectly. You must have at least .5 grains displayed on the scale before trickling in order to disable the AUTO ZERO.

When the Scale pan and its contents are removed from the platen the weight of the Scale pan will be displayed as a negative number. The Scale pan weight will remain in memory and the Scale will again read zero when the empty pan is replaced. This value is maintained until the ZERO button is pressed again or the scale is turned off.

We recommend that you leave the empty scale pan on the Scale. When you want to weigh a charge, put the powder in the pan, read the weight, dump the powder and **return the pan to the scale**. This will allow the scale to Re Zero itself for each weighing.

NOTE: When the battery starts running low (drops below 7.8 volts) you'll notice that the scale will become very inaccurate at higher weights requiring frequent re-calibration. When this happens you need a new battery even though the computer side of the scale is still running.

CALIBRATION

Proper and timely calibration is absolutely essential to good scale operation. Before you calibrate your scale insure that it has warmed up for a few minutes and reached a stable temperature. Make sure that the table or bench that the scale is resting on is stable and vibration free. Also make sure that you don't have any fans or vents blowing on the scale.

The Scale has been calibrated before shipment. However, you must check it before each use and re-calibrate if necessary. The purpose of calibration is to let the computer in the scale learn what signal from the load cell is associated with what specific weight.

NOTE: The BBK is very sensitive to off center loading. Make sure you always center the calibration weights on the platen.

To calibrate your scale first ensure that you have

a stable zero. That means your scale display reads 00.0 with the decimal point solid, not blinking. Make sure that you do not have any weight on the platen (no powder pan). See photo #3. Press the CAL button. The scale will read -0-. See photo #4. The Scale is asking you to give it zero weight. Push CAL again. Now the scale will read HOLD for a few seconds and then display -20-. See photo #5.

NOTE: You must be sure to center the calibration weights on the platen. Failure to do so will result in an inaccurate calibration.

Place the 20 gram check weight in the center of the platform. See photo #5. Press CAL and the Scale will read HOLD again and then display 30-. Remove the 20 gram weight and replace

with the 30 gram weight. See photo #6. Press CAL. After displaying HOLD the scale will ask you for 50 grams. Add the 20 gram weight to the 30 gram weight already on the platform. NOTE: At this point BOTH weights must be on the platen. See photo #7. Press CAL. After displaying HOLD the scale will ask you for -0- again. See photo #4. Remove both check weights and press CAL for the last time. The scale will come up reading zero.

NOTE: If the scale says that your 20 Gram check weight is 19.99, 20.00 or 20.01 there is no point in re-calibrating the scale as it can't do any better than this. This would translate to about a +/- .1 Grain range at the 308.6 grain mark.



Photo #3



Photo #4



Photo #5



Photo #6



Photo #7

LOW RANGE CALIBRATION: Since most handloaders are weighing powder charges of less than 20 grams (308.6 grains) we have provided a calibration technique suitable for low-range weighing. When the scale asks for -30- remove the 20 gram weight and push GMS/GRAINS. The scale will return to operation without setting the 30 and 50 gram points.

WARNING: When using the low range calibration, make sure that the total weight to be measured, Powder Pan plus the Charge does not exceed 20 Grams/ 308.6 grains. If it does, the scale will not be accurate without the full range calibration. When this happens, just go through the full calibration procedure as described above. For most reloading uses the low range method of calibrating the scale is preferred because it saves time. **Remember to calibrate the scale with the powder pan off of the platen.** Also remember the calibration weights are grams not grains.

SCALE ACCURACY AND READINGS
The PACT BBK Scale is accurate to +/- .1 grain up to 300 grains and +/- .2 grains to 750 Grains. This assumes that the scale has been allowed to warm up for a few minutes, has achieved a stable temperature and has an accurate calibration.

ERROR MESSAGES
The computer in your PACT Scale can report three different error conditions:

• **Err 1:** This error message will appear during

calibration if you get the check weights backwards (using the 20 gram weight when the Scale asks for the 30 gram weight) or try to calibrate the scale with the powder pan on the Scale platen. If you get this message with the correct check weight in place please contact PACT for further information.

• **Err 2:** This error message indicates that you have exceeded the total capacity of the Scale. The capacity is 750 grains or 50 grams. Err 2 can also permanently appear if the scale is dropped and the load cell is damaged.

• **FAIL:** This message appears when the Computer senses a zero or negative output from the load cell. It may appear momentarily if the Scale is bumped hard (something to avoid). If the Fail message comes on and stays on it is indicating that the load cell has probably failed due to the scale being dropped. If this happens contact PACT for repair information.

PRODUCT SERVICE AND WARRANTY INFORMATION

Your PACT BBK Scale is manufactured by PACT here at our factory in Texas and is backed by a limited lifetime warranty. With the exception of the load cell, if your scale breaks we'll fix it for free. If you break it we'll fix it for cost. Please understand that this scale is physically very fragile. Specifically the load cell, the component that does the load sensing, can be ruined by dropping the Scale, pulling up on the platen in such a way that it binds in the load cell, introducing a violent physical shock to the unit, shipping the Scale without securing the platen. Because we have no control over this **the load cell is not covered by warranty.** Be gentle with your scale and it'll last "forever."

In the unlikely event that your scale requires service please contact PACT for instructions. We will talk with you to determine if the trouble can be sorted out over the phone (most of the time it can). If it can't, we'll gladly issue you a Return Authorization (RA) number and give you packing and shipping instructions. Please do not ship a Scale to us with out calling first. Scales received without a RA number will be returned un-opened. You are responsible for insuring that the scale is properly packed. We recommend that you keep the original box and foam packaging.

NOT IN FACTORY CAL. MODE



Photo #8



Photo #9

FACTORY CALUBRATION:

Entering the factory calibration mode is two step process. Step two must be completed **WITHIN ONE SECOND** of step one or it will be ignored and the process will have to be repeated.

1. With the unit off. press and release the ON/OFF button.

2. **As soon** as the display comes on sumutaneously **press and hold** every button **EXCEPT CAL**. The display will freeze. Count to five and release the three buttons. If the display reads "00.0" you missed the window (See photo #8). Turn the scale off and repeat the procedure. Remeber this is a fast "one-two" punch. Once the scale stops displaying "tEst" the factory calibration window is closed.

If the scale is scale is displaying something other than "00.0", either our display test pattern, or a number, you are in factory calibration mode. Press Cal. until the display reads "- - 0 -" (See photo #9.). At this point the scale is in factory calibration mode. Go through the calibration procedure as described in the manual. **It is imperative that you make sure you put the correct weight on the platen during this process.**

When you are finished the scale will be back in normal mode with the factory calibration points reset. Put the scale in grams mode and check your weights. If every thing looks OK go ahead and calibrate the scale normally. You should not run into the " message. If you do something wrong with the scale it may require repair.

As always, if you have any questions please give us a yell at: (972) 641-2049 or at 1-800-PACT-INC.

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