

FACT

DIGITAL PRECISION POWDER SCALE



SAFETY AND OPERATING INSTRUCTIONS

IMPORTANT:

Like any scale, you control the accuracy of your PACT Digital Precision Powder 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.

DIGITAL SCALE BASICS

Your PACT 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. Your scale should be ---allowed to stabilize for 20 to 30 minutes 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.
- 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 check weights is critical to the accuracy of the scale. Check weights should be kept clean and carefully stored. If check 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.
- Unplug the AC adapter when not in use.
- If static build-up on the scale is noticed, wipe the scale with an antistatic towelette --(dryer sheet) or any readily available antistatic 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 AutoTare 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 PACT Scale before trickling to disable the AutoTare.

GENERAL INFORMATION

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

- Scale
- AC Power Adapter
- Two (2) check weights

The scale was shipped in protective packaging which should be saved and used for transporting the scale. This packaging is also recommended for 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.
- A lightning strike on the power line that feeds the scale.

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

DISPLAY PANEL DESCRIPTION

Refer to photo #1 for button location and a detailed look of the display panel. The REVIEW 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 ".00". Note that the left decimal will blink to alert you to the fact that you are in the grams mode.

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 TARE button is used to rezero 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 TARE button to rezero 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 12-volt AC wall transformer. Attach the plug on the transformer cord into the receptacle located on the side of the scale. See photo #2. Then plug the transformer into a convenient wall outlet. The scale will briefly display "test", then tare (Zero) itself, and then display "00.0". The scale is now reading in grains. 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 PACT 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. Power line fluctuations can also cause the scale to be unstable. If the scale constantly fluctuates up and down by a few tenths and you are sure that it is not being affected by drafts, try plugging the scale into another outlet.

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 Tare weight it will Auto Zero itself. This function is deactivated when the scale is more than ± 5 grains from your last Tare weight. When the scale drifts more than ± 0.5 grains from zero (your last tare) 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 TARE button to rezero the scale.

IMPORTANT: As with any scale you control the accuracy of your PACT Scale. It is up to you to TARE and Calibrate the scale properly. It is up to you to continually verify



Photo #2

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.

TO USE THE SCALE

WEIGHING: If the display panel is blank press the ON/OFF button. This will turn the display panel on. The scale will TARE (zero) itself and the display will read "00.0". Place the material to be weighed on the platen and the weight will be displayed on the panel. The PACT Scale reads in tenth (.1) of a grain increments up to 999.9 grains then goes to one grain increments from 1,000 to 1,500 grains.

REZEROING: When weighing something that must be held in a container, like gun powder, taring (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 rezeroing.

TO REZERO: Gently press TARE to obtain a zero reading. Make sure there is no weight on the platen. Place an empty powder pan on the platen. Press TARE 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 TARE 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 rezero itself for each weighing.

CALIBRATION

Proper and timely calibration is absolutely essential to good scale operation. Before you calibrate your scale, insure that it has 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 should check it before each use and recalibrate 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.

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-". Place the 20 gram check weight in the center of the platen. See photo #5. Press CAL and the scale will read "HOLD" again and then display "-50-". Remove the 20 gram weight and replace with the 50 gram weight. See photo #6. Press CAL. After displaying "HOLD" the scale will ask you for 70 grams. Add the 20 gram weight to the 50 gram weight already on the platen. 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 display will come up reading zero.

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 -50- remove the 20 gram weight and push REVIEW. The scale will return to operation without setting the 50 and 70 gram points. If later you try to weigh something more than 20 grams the scale will warn you by flashing "CAL". When this happens, just go through the full calibration procedure as described above. For most reloading uses, this is the preferred method of calibrating the scale. Remember to calibrate the scale with the powder pan off the platen. Also remember the calibration weights are grams not grains.

Photo #7



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 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 the load cell 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 or with inadequate packaging or a lightning strike on the power line. 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 without calling first. Scales received without a RA number will be returned unopened. You are responsible for insuring that the scale is properly packed. We recommend that you keep the original box and foam packaging.

Photo #3



Photo #4



Photo #5



Photo #6



SCALE ACCURACY AND READINGS

The PACT Scale is accurate to ± 1 grain. If you are weighing materials up to 999.9 grains, the display will read to 0.1 grains. If the object weighed is between 1,000 and 1,500 grains, the display changes to read to ± 1 grain. This slight loss of resolution is more than made up for by the scales ability to weigh to this level.

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 50 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 you will need to do a **FACTORY CALIBRATION**. (See pg. 8 of this manual)
- **Err 2**: This error message indicates that you have exceeded the total capacity of the scale. The capacity is 1,500 grains or 100 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 out --put from the load cell. It may appear --momentarily if the scale is bumped hard something to avoid). If the Fail message

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.

Remeber to go to www.pact.com for more product updates, accessories, new products and specials.

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Photo #8



Photo #9

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Fax: 214-641-2641
Hours: Monday-Friday
Central Standard Time
8:30 am to 5:30pm

