Avery Weigh-Tronix

PC-805 Parts Counter User's Manual

UNITED STATES

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CANADA

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la Class A prescrites dans le Reglement sur le brouillage radioelectrique que edicte par le ministere des Communications du Canada.

EUROPEAN COUNTRIES

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which the user may be required to take adequate measures.

CAUTION

Risk of electrical shock. Do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

Weigh-Tronix reserves the right to change specifications at any time.

IMPORTANT

This equipment must be routinely checked for proper operation and calibration. Application and usage will determine the frequency of calibration required for safe operation.

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Specifications

Capacities and Resolutions:

Capacity	Normal Resolution	Expanded Resolution
10 lb	0.001 lb	0.00005 lb
50 lb	0.005 lb	0.0002 lb
100 lb	0.01 lb	0.0005 lb
5 kg	0.0005 kg	0.00002 kg
25 kg	0.002 kg	0.0001 kg
50 kg	0.005 kg	0.0002 kg

Overcapacity Limits: Overcapacity indication (upper dashes) will occur at 9 divisions over rated capacity or 102% of full scale capacity.

Internal Resolution: 1 part in 2,000,000 (QDT™)

Filters: Standard digital software filtering

Display: Seven digits of seven-segment, high-contrast black LCD, .5" (1.3 cm) high with blue electro-luminescent backlight

Power: 15VDC at 300mA from a 117VAC 60Hz inline transformer
Optional 12VDC lead acid battery

Output: Bidirectional RS-232 output with selectable baud rate

Operating environment: 14° to 104° F (-10° to 40° C)
10 to 90% relative humidity, non-condensing

Introduction

This manual tells you how to operate the PC-805 high precision counting scale. You can configure your scale for different options and sampling methods. See the *PC-805 Service Manual* for details on configuration and calibration. This scale also has an RS-232 I/O channel for communication with appropriate remote devices.

Keyboard and Display

Figure 1 shows the keyboard and display of the PC-805. There is a numeric keypad on the right side of the front panel. It has two function keys:

- CLEAR
- RECALL

There are four keys below the display:

- COUNT/WEIGHT
- PRINT
- UNITS
- PIECE WEIGHT

And three keys to the right of the display:

- SAMPLE
- TARE
- ZERO

The display contains seven digits and triangular annunciators for the following:

- COUNT
- WEIGHT
- lb
- kg
- g
- oz

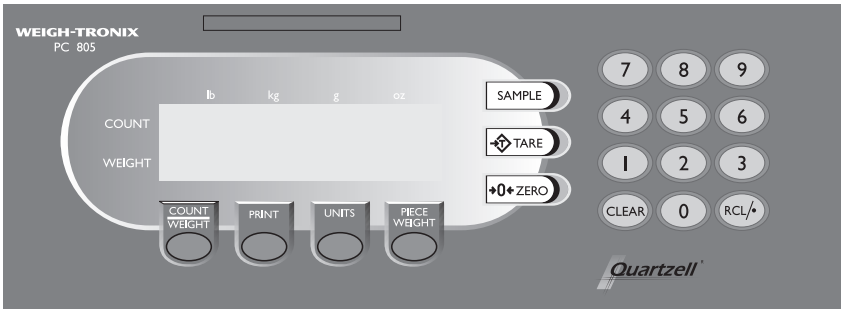


Figure 1
PC-805 Keyboard and Display

Key Functions

ZERO	Zeroes the scale weight or count.
TARE	Tares the weight on the scale.
SAMPLE	Used to select a sample size and to initiate the calculation of sample piece weight.
COUNT/WEIGHT	Toggles between displaying weight and count.
PRINT	Sends data to RS-232 device.
UNITS	Switches display to alternate units of measure.
PIECE WEIGHT	Lets you key in a known piece weight.
CLEAR	Lets you clear the displayed number, tare, or piece weight.
RECALL/.	Use this to recall the last tare or piece weight or enter a decimal.

If you press the **RECALL/.** *key followed by a numeric key, the 805's brain knows you meant the first key press as a decimal.*

Scale Setup and Operation

Scale Setup

Unpacking the scale

Unpack the PC-805 and remove the shipping materials from around the scale.

The PC-805 comes with the AC transformer in place beneath the scale. Plug the unit into a grounded 120VAC source.

Battery power option

A PC-805 with the backlight enabled and a fully charged battery may be expected to last 12 hours before recharging is necessary. With the backlight disabled the battery will last approximately 24 hours.

If you are going to use the optional DC battery power, remove the transformer from beneath the scale, place the battery in its place with padding between the battery and the scale base and around the battery. Secure the battery with the restraining strap. Plug the battery cable into the receptacle on the back of the scale.

The battery can be recharged in place by connecting the transformer to a power source and to the scale. The battery will recharge while the scale is being powered by the transformer.

Press any key on the front panel to turn the scale on when powered by the battery. You can set the battery option to shutoff the scale automatically after a period of time. See the *Service Manual* for this information.

Installing the scale

Place the scale on a stable, level surface out of the way of air currents. Use the adjustable feet to level the scale. Be sure the scale does not rock back and forth. Lock the feet in position with the knurled locking rings.

Operation as a Scale

The PC-805 can be used as a bench scale or as a counting scale. The annunciators indicate when you are in the weight mode or count mode and when the unit is configured for pounds, kilograms, grams, or ounces.

Press the **UNITS** key to change the unit of measure.

Indicators let you know when the scale is stable (no motion), when the scale is at zero and when a tare is in effect.

Follow these instructions for operating the PC-805 as a scale:

The scale will always power up in normal weighing mode.

1. For AC powered models, plug the unit into a grounded 120VAC source. . .

   For battery powered models, press any key. . .

   The scale performs an internal diagnostics test, then displays the weight in the weigh mode. The scale is in the weigh mode when the *WEIGHT* annunciator is lit.

2. Zero the scale by pressing the **ZERO** key. . .

   The *ZERO* indicator illuminates.

3. For gross weighing, place the object to be weighed on the scale. . .

   Gross weight is displayed.

Important!
Calibration automatically sets resolution to 10000 divisions. If the scale has been recalibrated, reset scale resolution to your needs. See the Service Manual.

4. For net weighing, place object to be tared on the scale and press the **TARE** key. . .

   The *TARE* annunciator illuminates, and zero weight is displayed.

5. Place material to be weighed on the scale.

   Net weight of material is displayed.

6. If your scale is hooked up to a printer, press **PRINT** to print a weight.

   Weight information is printed.

Operation as a Counting Scale

The minimum sample size is selectable during configuration.

There are two sampling methods which are selectable during configuration—bulk sampling and dribble sampling. If you use the bulk sampling method, you must place all the sample parts on the scale at the same time. If you use the dribble method, you may place the sample parts onto the scale a few at a time. The two methods are covered below.

Bulk Sampling

1. In weigh or count mode, repeatedly press the **SAMPLE** key until the sample size you want is displayed **or** key in a sample size (up to 9,999) and press **SAMPLE**. . .

   Your display may show ***ZEro*** briefly. This occurs if it takes time for the scale to find the Zero Reference. Your display may show ***no ZEro*** briefly if the scale cannot find a Zero Reference. Check to be sure the

Important!

If the scale has been recalibrated, reset scale resolution to your needs. Calibration automatically sets resolution to 10000 divisions.

If there is no piece weight, the scale will not go into count mode when you press the **COUNT/WEIGHT** *key.*

When you press the SAMPLE key, the PC-805 performs an autozero operation. So, if you have a container on the scale and press the SAMPLE key, the container weight will be zeroed and when you place the parts to be counted on the scale, only the weight and count of the parts will be computed.

scale is stable and retry step #1 if this occurs. If all is OK, you will see the following:

Add 10 is displayed. ***10*** is the sample size in this example. The minimum sample size can be configured to be 1, 2, 5, 10, 25, 50 or 100. See the *PC-805 Service Manual* for configuration instructions.

2. Place 10 sample parts on the scale at the same time. . .

StAndbY is displayed while the unit computes the weight of the sample and displays the count. If the scale determines that the sample size meets the minimum accuracy requirement, ***10*** will be displayed.

If the scale determines the sample size does not meet the minimum accuracy requirement, the display will prompt you to ***Add XXX*** more parts. When prompting you, ***Add*** will flash.

3. Add the requested samples to those already on the scale. Wait for the scale to stabilize, then press the **SAMPLE** key. . .

StAndbY is displayed while the scale updates the piece weight. If the sample meets the minimum accuracy, the count will be displayed.

Press the **COUNT/WEIGHT** key to toggle between count and weigh mode. You may tare a container while in either mode.

Dribble Sampling

Important!

If the scale has been recalibrated, reset scale resolution to your needs. Calibration automatically sets resolution to 10000 divisions.

1. From weigh or count mode, repeatedly press the **SAMPLE** key until the sample size you want is displayed **or** key in a sample size (up to 9,999) and press **SAMPLE**. . .

Your display may show ***ZEro*** briefly. This occurs if it takes time for the scale to find the Zero Reference. Your display may show ***no ZEro*** briefly if the scale can not find a Zero Reference. Check to be sure the scale is stable and retry step #1 if this occurs. If all is OK, you will see the following:

Add 10 is displayed. ***10*** is the sample size in this example. The minimum sample size can be configured to be 1, 2, 5, 10, 25, 50

or 100. See the *Service Manual* for configuration instructions.

2. Place 10 sample parts on the scale one at a time or all at once. Wait for the scale to stabilize, then press the **SAMPLE** key. . .

Add will flash until the **SAMPLE** key is pressed, then ***StAndbY*** is displayed while the unit computes the weight of the sample and displays the count.

If the scale determines that the sample size meets the minimum accuracy requirement, ***10*** will be displayed.

If the scale determines the sample size does not meet the minimum accuracy requirement, the display will prompt you to ***Add XXX*** more parts. When prompting you, ***Add*** will flash.

3. Add the requested samples one at a time or all at once to those already on the scale. Wait for the scale to stabilize and press the **SAMPLE** key. . .

StAndbY is displayed while the scale updates the piece weight. If the sample meets the minimum accuracy, the count will be displayed.

Negative Sampling/Counting

If you have a full container with a known tare weight, you can determine the entire count of the container without emptying the container. This is called reverse sampling/counting.

1. Place the full container on the scale and key in the tare weight via the numeric, then press the **TARE** key.

This method is handy for filling kits with parts. After step #4, tare the scale, remove some parts and the scale will show a negative part count. Add or remove parts until your desired count is shown. Press the **TARE** *key and repeat.*

2. Remove the desired sample size.

3. Press **SAMPLE** until your sample size is displayed or key in the sample size and press **SAMPLE**.

4. Place the sample back in the container. . .

The scale will display the correct count.

Entering a Known Piece Weight

Sampling is just one way to get a piece weight and count items. You can also key in a known piece weight on the numeric keypad and press the **PIECE WEIGHT** key. This enters the piece weight and calculates counts based on that weight.

Recalling a Piece Weight

The PC-805 lets you view the active piece weight by using the **RECALL** key. The active piece weight is one you have keyed in or one that has resulted from doing a sample. This is useful if you want to record a piece weight for a part. The next time you want to count that part you can key in the recorded piece weight.

1. With the COUNT or WEIGHT annunciator lit, press the **RCL** key. . . — ***rCL*** is displayed. This stands for recall.
2. Press the **PIECE WEIGHT** key. . . — The active piece weight will be be displayed.
3. Press the **COUNT/WEIGHT** key. . . — Scale is in count mode with the active piece weight in effect.

Entering a Known Tare Weight

You can key in a known tare weight on the numeric keypad and press the **TARE** key. This enters the tare weight and the TARE indicator lights to remind you that there is an active tare weight.

Recalling a Tare Weight

The PC-805 can show the active tare weight in case you want to record it for future use.

1. With the COUNT or WEIGHT annunciator lit, press the **RCL** key. . . — ***rCL*** is displayed. This stands for recall.
2. Press the **TARE** key. . . — The last active tare weight will be be displayed.
3. Press the **COUNT/WEIGHT** key. . . — Scale is in weight mode with the active tare weight in effect.

Using the CLEAR Key

You can clear an active tare weight, piece weight or keyed in number by pressing the **CLEAR** key.

To clear a tare weight, press **CLEAR** then the **TARE** key. The active tare will be deleted.

To clear the piece weight, press **CLEAR** then the **PIECE WEIGHT** key. The active piece weight will be deleted.

If you miskey a number, press the **CLEAR** key as many times as necessary. Continue keying in your number as usual.

Serial Communications

Cable Pinouts

A straight through cable (1 to 1, 2 to 2, etc.) can be used from a 9-pin computer serial port to connect this scale.

Pinout assignments for the serial communication are shown below.

9-pin Female Scale		
Pin	**Name**	**Direction**
2	TXD	OUT
3	RXD	IN
5	SG	-

Preset Print Formats

If the scale is in count mode, displayed weight formats will send weight, not count.

There are six preset serial print formats. Choose the one you want to use during configuration of the scale. See the *Service Manual* for configuration instructions. The formats are described below.

Abbreviations:
CR = carriage return
LF = line feed
SP = space
U = units character
W = weight character
C = count character
T = tare character
G = gross weight character
P = piece weight character
I = weight type identifier (G for gross, T for tare and N for net)

Imp Printer Format 0

Net weight only:

WWWW.WW<CR><LF>

```
4.410
```

Imp Printer Format 1

Net weight with units:

WWWW.WW<SP>UU<CR><LF>

```
4.410 LB
```

Imp Printer Format 2

GTN with units:

'G'<SP>GGGG.GG<SP>UU<CR><LF>

'T'<SP>TTTT.TT<SP>UU<CR><LF>

'N'<SP>WWWW.WW<SP>UU<CR><LF>

```
G 4.410 LB
T 0.000 LB
N 4.410 LB
```

Imp Printer Format 3

Displayed weight with identifier:

I<SP>WWWW.WW<CR><LF>

```
G 4.410
```

Imp Printer Format 4

In Count Mode: **N<SP>CCCC<SP>PCS<CR><LF>**

In Weigh Mode: **I<SP>WWWW.WW<SP>UU<CR><LF>**

```
G 4.410 LB
```

Imp Printer Format 5

Net weight with units, count and piece weight:

Net = WWWW.WW<SP>UU<CR><LF> (Net = or Gross =)

Count = CCCCCCC<CR><LF>

Piece Wt = .PPPPPP<SP>UU<CR><LF>

```
GROSS WT:  4.410 LB
COUNT      0
PIECE WT:  0.000000000 LB
```

Imp Printer Format 6

Fixed length (nine digits) displayed weight with units.

sxxxxx.xx uu<CR> (**s** = positive (a space) or negative (-) weight)

```
     4.410 LB
```

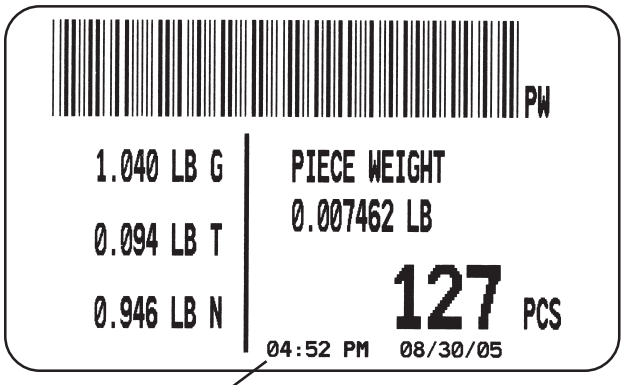
Imp Printer Format 7

COUNT: CCCC<SP>PCS<CR><LF>

```
COUNT      0 PCS
```

Zebra 2443 / Orion Printer Fixed Format Label Output

You may choose to print an Orion printer bar code label. This printer has one format shown below. It can be chosen through the configuration menu explained in the Service Manual. The active unit of measure will be printed. This example shows the weight in LB and the time and date line. If your printer is not equipped with time and date capability, the time and date line will not appear on the label.



Time and date line only appear if the printer has time and date capability.

Computer Protocol

The scale's RS-232 bidirectional communication works in a master/slave protocol. A computer or master sends a command code to the scale (slave) which will return a response to the master device or perform a scale function. Commands to the scale are in uppercase, terminated with a carriage return. Scale responses begin with the lowercase equivalent of the command code.

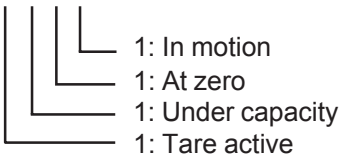
COMMAND	RESPONSE	DESCRIPTION
CA<CR>	none	Clear Sample
CC<CR>	cc_xxxxx<CR>	Request piece count
CP<CR>	cp_x.xxxxxxuu<CR>	Request piece weight value
CM<CR>	none	Switch to count mode
DIxxxxxxxx<CR>	none	Display Message xxxx (message is 8 characters max)
IC<CR>	none	Reset Scale (warm start)
PWx.xxxxx_uu<CR>	none	Loads x.xxxxx as piece weight
TR<CR>	tr_ _ _ _x.xxxuu<CR>	Request tare value
TZ<CR>	none	Clear the current tare
Txxxx.x_uu<CR>	none	Loads xxxx.x as tare
WD<CR>	wd_ _ _xx.xxx<CR>	Request net weight
WE<CR>	we_ _ _xx.xxxuu<CR>	Request net weight with units
W<CR>	we_ _ _ _x.xxxuuHML<CR>	Request net weight with units and status
WG<CR>	wg_ _ _xx.xxxuu<CR>	Request gross weight with units
WM<CR>	none	Switch to weight mode
WS<CR>	ws_HML<CR>	Request scale status
WZ<CR>	none	Zero the scale

Legend:

1) "_" ..... represents the ASCII space character
2) "u" ..... represents the units of measure character(s):
   ..... "LB" for pounds
   ..... "KG" for kilograms
   ..... "G" for grams
3) <CR> .. represents the ASCII carriage return
4) HML .... represents three bytes of scale status information as described on the next page.
5) Value entered is assumed to be in same units of measure as what the scale is currently in.
6) Display messages are limited to seven characters.

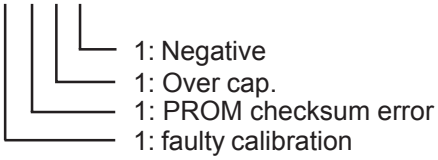
Scale Status Byte H:

BIT: 7 6 5 4 3 2 1 0
0 0 1 1 X X X X



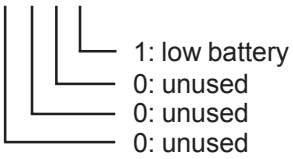
Scale Status Byte M:

BIT: 7 6 5 4 3 2 1 0
0 0 1 1 X X X X



Scale Status Byte L:

BIT: 7 6 5 4 3 2 1 0
0 0 1 1 0 0 0 X



Error Messages

The error messages you might see on the display are shown below.

NO CAL Calibration error - perform calibration procedure to correct

-------- Middles dashes on power up indicate the scale was not stable or there was too much weight on the scale. Remove the weight or the cause of unstable weight and press the **ZERO** key. If condition persists try relocating scale and/or power down and retry. If condition continues, contact your Weigh-Tronix representative.

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