

# CTS Counting Scale



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## Overview

This manual is a guide and subject to change or correction.

CTS scales use high precision sensors and the latest Microchip technology for accurate weighing and counting functions. Please contact **Industrial Weighing Systems** for changes in the operation manual or new operating features.

## Precautions, Before Using Your Scale

1. Do not get scale wet and do not place it in an environment with extreme temperature or humidity.
2. Do not shock the scale and do not exceed the capacity.
3. If the power is low or the scale automatically power off, charge battery for a full 12 hours before use.  
An incomplete or short charge cycle may damage the battery.
4. Before using the scale, place it on a stable platform and adjust the feet to make the scale level.
5. Working conditions: The operating temperature should be: 0 to 40 Celsius

## KEYPAD



Numeric keys



Decimal point key and Unit conversion key



Zero key, without anything on the pan press to set weight to 0.



To subtract container weight, Indicates weight window is net weight.



Adds count window to accumulator register.



Clear the total count accumulation.



Clear the count check entries.



Check/enter count set point



Clear the UNIT WEIGHT window value.

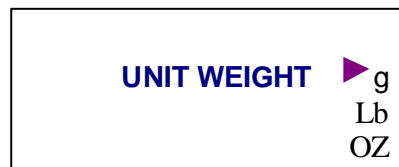


Manual entry of unit weight



Sample Key, for calculating unit weight.

## DISPLAYS



## Operation


### 1: Power ON/OFF


Rocker switch located right front side of scale.  
Forward = ON      Back = OFF

**Power ON**      Remove all objects from tray and place switch in **ON** position.  
Display will perform a self-test and then go to normal weighing mode.

**Power OFF**      Push the switch to **OFF** back position to power off the scale.


### 2: Zero      **Zero can be set if within the range of +/- 2% rated scale capacity**

Press  with nothing on the platter to set the **WEIGHT** window to 0 units.

Center zero is indicated by  in the **WEIGHT** window.  
Zero may shift due to: short warm up time, temperature changes, vibration or moving scale.

### 3: Unit Selection

New software versions 2.2 or newer have selectable display units.

Press  to change **WEIGHT** window units: **Kg, Gram, Lb, OZ**.  
The scale will power up and display the last selected units prior to power off.

### 4: Tare function      There are 2 methods of entering a tare value, AUTO or MANUAL.

A stored TARE is indicated by  in the **WEIGHT** window.

When platter is empty, **WEIGHT** window will show stored TARE value with a "T" sign.


To erase TARE empty platter and press  **WEIGHT** window will show 0 units.

**AUTO:**      Place an empty sample container on the pan





When weight is stable, press  to set **WEIGHT** window to 0 units.


### **MANUAL**

**NOTE: Lb or OZ decimal tare weights <1 must be entered in Grams**

Pressing the  key first will only change the displayed units.  
We have provided instructions for manually entering **GRAM** tare weights.  
**These instructions apply to Lb or Oz tare values > 1.**

To enter a known tare manually the platter must be empty showing 0

Press  until **UNIT WEIGHT** window is showing  g units. (  lb,  oz for tare >1)


Use numeric keys, when **UNIT WEIGHT** window shows known tare value, press .  
After entering the TARE you may now change the displayed units.




## 5: Unit Weight


**UNIT WEIGHT window** displays sample weight value to increment the **COUNT window**.  
Unit weight is either calculated or manually entered.

### By Sampling


Place an empty sample container on the pan and press   
Put a known quantity of samples into the container.

Use numeric keys to enter known quantity in the **UNIT WEIGHT window** and press   
Scale calculates **UNIT WEIGHT window** value and displays quantity in the **COUNT window**.


**By Manual entry** **NOTE: Lb or OZ decimal UNIT weights <1 must be entered in Grams**

Pressing the  key first will only change the displayed units.  
We have provided instructions for manually entering **GRAM** unit weights.  
**These instructions apply to Lb or Oz unit weight values > 1.**

To enter the unit weight manually the platter must be empty showing 0

Use numeric keys to display known unit weight in the **UNIT WEIGHT window**, press   
After entering the unit weight you may now change the displayed units.


### CLEAR unit weight

At any time press the  key to set the **UNIT WEIGHT window** to 0 units.


### Count Set Point

A set point can be entered to have the scale beep repeatedly when reached.  
Alarm sounds when the number of samples weighed is more than the set-point value


Use numeric keys to display count set-point value in the **UNIT WEIGHT window**, press 

To clear the count set-point value press 

### Accumulation


When a stable sample count is displayed, press  to start accumulation,  
**WEIGHT window** shows number of accumulations maximum of 99



**UNIT WEIGHT window** shows accumulated count total, show **OL** when the count > 999999

Press  to clear all accumulator windows.





### Setting backlight



Turn the scale ON, Press and hold  until the end of the self-test, Display shows "AUTO" or "OFF" or "ON"

Press  to alternate selections, press  to confirm.  
**AUTO** Backlight will come on when weight value changes, will go out a few seconds after stability.  
**OFF** Backlight will not come on at all. **ON** Backlight is always on when power switch is on.

### Setting Filter



Various environmental conditions such as vibration, air circulation or temperature swings may cause the display to fluctuate in the weight or count display. Changing the filter response time may improve or speed depending on the set value. Values range from **nb0** fastest to **nb6** slowest.



Press and hold  during self-test (power up), release  when **WEIGHT window** shows **nb"X"**

Press  to alternate selections **nb0** through **nb6**; press  to confirm your selection.  
**WEIGHT window** will then return to normal weighing mode.

### Zero tracking range and Zero display range

**Zero tracking** maintains the zero setting and cancels out small changes such as temperature or wind.

Press and hold  during self-test (power up), release  when **WEIGHT window** shows **X.Xd**  
Zero tracking is set in number of divisions: 0.0d, 0.5d, 1.0d, 1.5d, 2.0d, 3.0d (normal 0.5d)

Press  to alternate selections, press  to confirm your selection.  
**WEIGHT window** will then return to normal weighing mode.



### Zero display range.

After selecting Zero tracking range, **WEIGHT window** shows "Zero-S" or "Zero-L"

S = zero is actual, will show +/- 1 division changes.



L= zero is forced to be displayed when within +/- 3 divisions.



Press  to alternate selections, press  to confirm your selection.  
**WEIGHT window** will then show ON or OFF, selects if zero is shown below zero (-30D of actual zero).

Press  to alternate selections, press  to confirm your selection.  
**WEIGHT window** will then return to normal weighing mode.

### Division Selection


The scale is supplied with best increment division set. (Capacity 6000 x 0.1 gram, 30,000 x 0.5 Gram)  
Division increment is in grams, selections include (0.5, 1, 2, 5, 10, 20, 50, 100, 200)



Press and hold  during self-test (power up), release  when **WEIGHT window** shows **DIV**



Press  to alternate selections in **UNIT WEIGHT window**, press  to confirm your selection.  
**WEIGHT window** will then return to normal weighing mode.



## Counting and Auto-average



Press and hold  during self-test, release  when **WEIGHT** window shows **DIV** or **Code**  
DIV is counting division (normal) Code is counting ISN



Press  to alternate selections, press  to confirm your selection.  
**WEIGHT** window will show ON or OFF, selects if **AUTO AVERAGE** is on or off.

Press  to alternate selections, press  to confirm your selection.  
**WEIGHT** window will then return to normal weighing mode.

## Setting of communication (optional)

Press and hold  during self-test, release  when **WEIGHT** window shows **BAUD**  
Programmed Baud Rate is displayed in **UNIT WEIGHT** window, select (2400, 4800 or 9600)

Press  to alternate selections, press  to confirm your selection.  
**WEIGHT** window will show **CO** or **ST**, CO= continuous output, ST send output when stable

Press  to alternate selections, press  to confirm your selection.  
**WEIGHT** window will then return to normal weighing mode.

## **RS-232 Communication format:**

Data Bit: 8    Parity: N(None)    Stop Bit: 1    Code: ASCII

Bits: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Sent G ■ W ■ SP ■ + x x x x x x x x K g SP CR LF

Data Format:

First character G=GROSS N=NET

Sp = space    CR = Carriage Return    LF = Line Feed

Example Units = Kg

G.W. :+ 1.9995kg

U.W. :+1.99956 g/pcs

Total:+ 1000pcs

Example Units = g

G.W. :+ 1999.5 9

U.W. :+ 1.99956 g/pcs

Total:+ 1000pcs

Example Units = lb

G.W. :+ 4.40821b

U.W. :+0.00441lb/pcs

Total:+ 1000pcs

Example Units = oz

G.W. :+ 70.530oz

U.W. :+0.07053oz/pcs

Total:+ 1000pcs




## External Calibration


The scale has been factory calibrated internally setting linearity at 50% and 100% capacity. If you find your scale does not read accurately, you may perform a single point calibration.

Ensure the platter is empty prior to starting calibration.

Press and hold  during self-test, release  when **WEIGHT** window shows **CAL**

Press  to set display to **0 Kgs**

Place a known weight approximately 2/3 of the scale capacity center platter, allow time to settle.

Use the numeric keys and decimal if needed to enter in Kgs the known value then press  **WEIGHT** window will immediately store your calibration and return to normal weighing mode. Your calibration weight value should now be shown in the **WEIGHT** window

External calibration will not work when the error is outside the range of +/-10% Capacity.

## Recharging the battery

When battery voltage is low, the LOW POWER indicator will be shown.

Turn the scale off and recharge the battery, it takes approximately 12 hours for a full charge.

If you continue to operate on low battery power the scale will automatically turn off after time.

When charging, a yellow LED will light up on the panel and turn GREEN when fully charged.

To ensure the battery voltage is in full, we recommend charging an extra 3-4 hours.

**Scale can be operated while charging.**

New models are supplied with an AC wall adapter, 7-7.5 VDC 400MA

Plug into scale on bottom back right corner when facing displays.

## Specifications

CTS-30000 is 30Kg weighing in 0.5g increments, CTS6000 is 6Kg weighing in 0.1g increments

Platform size - 310mm x 230mm

Automatic Power Off, Side On/Off Switch

Durable, Contemporary Design, Easy to Read Green Backlit LED Display

Elegant Stainless Steel Weighing Platform

Adjustable Rubber Feet, Built-in Spirit Level

HOLD, TARE, Count Functions, External Calibration, RS232

### **Scale Power**

An Internal DC 6V / 4Ah rechargeable battery supplies scale power.

Old models have an AC power cord to charge internal battery.

New models are supplied with an AC wall adapter, 7-7.5 VDC 400MA

