

Counting scales



These lightweight, portable scales are versatile weighing and counting solutions that connect to printers, scanners and other scales.

## It's What's Inside That Counts

Counting scales can simultaneously weigh and count pieces placed on the scale. They're a great tool for ensuring the accuracy of inventory data, with multiple internal components that make them function properly.

### How Does A Counting Scale Work?

Counting scales can weigh and count pieces simultaneously. They do this by using the sample weight divided by total weight. However, more internal calculations allow the counting scale to function properly and maintain accuracy.

### What is Internal Resolution?

Internal resolution is how many divisions it divides the total capacity of the scale. This means that the internal resolution is the smallest weight the scale could possibly detect. It should be noted that the scale does this function internally and isn't seen by the operator.

For example, a 50-pound counting scale with a one million-count resolution divides the 50 pounds into 1,000,000 parts. Therefore, the internal resolution is 50/1,000,000, or 0.00005 pounds.

$$\text{Internal Resolution} = \frac{\text{Capacity}}{\text{Divisions}}$$

↓  
The smallest weight the scale can detect

## What is External Resolution?

Also called display resolution, the external resolution is the smallest number the scale is able to display. It is calculated by dividing the scale's capacity by the internal resolution. In most counting scales, the external resolution will be one part in 10,000, also expressed as 1/10,000 or 0.0001.

For example, if the external resolution was 0.05 grams, it wouldn't be able to register the weight of an item that weighed 0.005 grams. However, if the external resolution was 0.0001, it would be able to read the weight of the 0.005-gram item.

$$\text{External Resolution} = \frac{\text{Capacity}}{\text{Internal Resolution}}$$

↓  
The smallest weight the scale can display

## Counting Scales in Action

Considering the previous examples, if some screws were placed on the scale and the internal count was 210, the weight would be calculated as 0.01050 pounds because the internal count is multiplied by the internal resolution of 0.00005. The external resolution would be read as 00.01 if the desired amount of decimal points was set to five digits. The software automatically rounds off.

The operator can sample quantities to ensure the scale is counting correctly. After keying in sample quantity—10 pieces, for example—the scale still “knows” how many internal counts are being used (210). To determine how many internal counts per piece, the internal count is divided by the sample quantity. Or,  $210 \div 10 = 21$ .

Now that the internal counts per piece is calculated, the piece weight must be converted into pounds. Multiply the weight per count by the number of counts:  $0.01050 \times 210 = 0.00105$ . This is displayed in the Unit or Piece Weight window. When a change in weight is registered, the calculation is done in reverse, using the internal resolutions per piece as the divisor. If more pieces are placed on the scale and the number of internal resolutions is now 187091, the scale would calculate:  $187091 \div 21 = 8909$  (rounded off) total pieces.



$$\frac{\text{Number of screws}}{10} = 21 \rightarrow \text{Weight per screw}$$

↻  
Weight of the screws

## Quality Counts

Rice Lake Weighing Systems offers counting scales to streamline your operations and document accurate information. These lightweight, portable scales are versatile weighing and counting solutions that connect to printers, scanners and other scales. Learn how Rice Lake's counting scales can enhance your processes.