

# Virtual Measurements & Control



**VW-330-C**  
**Revision C**

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## Safety Notice

It is important that Virtual Measurements & Control's equipment is installed and operated in such a way that all applicable safety requirements are met. It is your responsibility as a user to ensure that you identify the relevant standards and comply with them. Failure to do so may result in damages to equipment and personal injury. In particular, you should review the contents of the User Guide carefully before installing or operating the equipment.

**This equipment is not designed for placement in hazardous or explosive environments that require Factory Mutual Approval.**

Under no circumstances will the supplier of the equipment be liable for any incidental, consequential, or special damages of any kind whatsoever, including but not limited to lost profits arising from or in any way associated with the use of the equipment or this User Guide.

## Available Capacities

Model Number	Capacity	Graduation	Platter Dimension
VW-330C-1.5	1.5 kg 3.3 lb	0.00005 kg 0.0001 lb	11" x 8.7" (280mm x 220mm)
VW-330C-3	3 kg 6.6 lb	0.0001 kg 0.0002 lb	11" x 8.7" (280mm x 220mm)
VW-330C-7.5	7.5 kg 16 lb	0.0002 kg 0.0005 lb	11" x 8.7" (280mm x 220mm)
VW-330C-15	15 kg 33 lb	0.0005 kg 0.001 lb	11" x 8.7" (280mm x 220mm)
VW-330C-30	30 kg 66 lb	0.001 kg 0.002 lb	11" x 8.7" (280mm x 220mm)
VW-330C-50	50 kg 110 lb	0.002 kg 0.005 lb	11" x 8.7" (280mm x 220mm)

## Accuracy

Scale overall weighing accuracy is specified at  $\pm 1$  displayed graduation (d).

Linearity	$\pm 1d$
Repeatability	$\pm 1d$
Eccentric Error	$\pm 1d$
Hysteresis	$\pm 2d$

## Features

- Auto shut off (selectable)
- Auto zero tracking
- Rechargeable battery
- Large Backlit LCD (12 mm high)

## Power

### Battery

Internal rechargeable 6VDC 4.5AH battery.

The battery will power the scale for approximately 85 hours between charges.

A completely discharged battery will take approximately 24 hours to charge.  
**(The scale may be used during the charging cycle.)**

### AC

120 VAC AC Adapter (10.5VDC/500MA Output) \*  
**(The battery will be charging while the AC adapter is in use)**

*\*To avoid possible circuit damage use only the AC adapter supplied with the balance.*

## Operating Temperature/Environment

0-40 C / 32-104 F

Avoid extended periods of direct sunlight.

Avoid installation in dusty environments.

Avoid installation in areas where serious vibration is present.

Do not get the internal instrumentation wet. If water accidentally enters the unit remove the batteries and unplug the AC adapter then allow the unit to dry completely. This *may* prevent permanent damage

## Front Panel Controls

### Keypad Functions

0-9

Numeric entry keys

M+

Accumulate piece count

MC

Clear accumulated piece count

TOTAL

Display accumulated piece count

WT/SET

Manually enter a piece weight

ENT

Clear/Change Mode

PCS/SET

Set Sample Size / Take Sample

QTY/SET

Setup piece check mode

TARE/CHG

Tare weight / Turn piece check mode on or off

ZERO/MENU

Zero weight / Select target low or high to edit in piece check mode

### Status Enunciators

Kg

Weight functions are in kilograms

Lb

Weight functions are in pounds

STB

The weight is stable

TARE

The weight display is in net weight mode (tare is active)

ZERO

The scale is at center zero

LOW BAT

The battery is low

LACK OF SAMPLE the sample size is too small

LACK OF PIECE WEIGHT The piece weight is too small

## Displays

WEIGHT

The weight in the currently selected units of measure

UNIT WEIGHT

The unit weight of the pieces (piece weight) or numeric key entry display.

TOTAL (pcs)

Current piece count or accumulator totals

## Operation

### Weighing

#### Zeroing

To establish zero press the ZERO/MENU key. The ZERO '◀' will illuminate indicating center zero.

#### Taring

To establish a tare value place the item to tare on the weigh platform (usually a container) and press the TARE/CHG key.

#### Units

The VW-330 will display weight in pounds or kilograms. The current unit of measure is indicated by the '◀' next to kg (kilograms) or lb (pounds) on the left side of the weight display.

The unit of measure is changed by toggling the two position selector switch found on the bottom (underside) left.

Note that changing the unit of measure will require a recalculation or entry of the sample weight.

### Weight

The current weight applied to the weight platform is displayed in the WEIGHT display

in the currently selected unit of measure.

## Counting

### Manual Piece Weight Entry

Enter a known piece weight using the numeric keypad. The entry may be observed in the 'UNIT WEIGHT' display.

*Note that the piece weight is to be entered in grams if the current unit of measure is kg or 0.001 pound increments if the current unit of measure is pounds.*

*Example:*

*Entering 1.234 as a piece weight while using the pounds unit of measure will be a piece weight of 0.001234 pounds.*

*Entering 1.234 as a piece weight while using the kilograms unit of measure will be a piece weight of 1.234 grams.*

*This allows for a higher precision of piece weight entry than would otherwise be possible in the available display space.*

After the desired piece weight is entered press the 'WT/SET' key.

Place the pieces to be counted on the weigh platform. The count will be displayed in the 'TOTAL (pcs)' display.

### Lack of Piece Weight

For the best accuracy the piece weight should be at least 3 scale divisions. For example a scale counting by 0.0002 lb divisions would require 3 x 0.0002 lb equal to 0.0006 lb.

Counting will be allowed with a lower piece weight although the count accuracy is reduced as indicated by the 'LACK OF PIECE WEIGHT' enunciator.

### Calculate Piece Weight

Place the pieces to be sampled on the weigh platform.

Enter the number of sample pieces using the numeric keypad. The entry may be observed in the 'UNIT WEIGHT' display.

After the number of pieces has been entered press the 'PCS/SET' key.

The sample count will be displayed in the 'TOTAL (pcs)' display and the calculated piece weight will be in the 'UNIT WEIGHT' display.

*Note that the piece weight displayed in grams if the current unit of measure is kg or 0.001 pound increments if the current unit of measure is pounds.*

*Example:*

*A displayed piece weight of 1.234 while using the pounds unit of measure will represent a piece weight of 0.001234 pounds.*

*A displayed piece weight of 1.234 while using the kilograms unit of measure will represent a piece weight of 1.234 grams.*

*This allows for a higher precision of piece weight display than would otherwise be possible in the available display space.*

Place the pieces to be counted on the weigh platform. The count will be displayed in the 'TOTAL (pcs)' display.

### **Lack of Sample**

For the best accuracy the total weight of the piece sample should be at least 80 scale divisions. For example a scale counting by 0.0002 lb divisions would require 80 x 0.0002 lb equal to 0.016 lb.

Counting will be allowed with a lower sample weight although the count accuracy is reduced as indicated by the 'LACK OF SAMPLE' enunciator.

### **Check Count Mode**

The VW-330 has audible alarms that can be used to tolerance check the piece count of batches or provide audible feed back when batches of pieces are being counted.

Press the QTY/SET key.

The WEIGHT display will prompt CH = with ON or OFF flashing.

To enable piece checking press the TARE/CHG key until ON is flashing, to disable press the TARE/CHG key until OFF is flashing.

If piece checking is enabled set the low 'L' and high 'H' count tolerance values to be used for the tolerance check.

To set the low 'L' tolerance press the ZERO/MENU key until the 'L' is flashing in the UNIT WEIGHT display. Using the numeric keypad key in the desired low tolerance.

To set the high 'H' tolerance press the ZERO/MENU key until the 'H' is flashing in the UNIT WEIGHT display. Using the numeric keypad key in the desired high tolerance.

For example if 1000 pieces is the desired count and an error of one piece is acceptable you would set the low tolerance to 999 and the high tolerance to 1001.

When the desired targets are set press QTY/SET to exit.

Clear values using the ENT key.

### **Check Count Alarms**

When the count check mode is enabled the VW-330 will beep to indicate an out of tolerance condition.

A steady 'slow beep' will indicate a low count, a steady 'fast beep' will indicate a high count.

### **Count Accumulation**

The piece count for multiple batches can be accumulated.

Insure the accumulator is cleared by pressing the MC key.

Count a batch of pieces in the normal manner.  
With the batch of pieces on the weight platform press M+.

The weight display will indicate 01 (one batch) and the pieces will be accumulated. The TOTAL display will display the current accumulated total.

Remove the pieces.

Press the ENT key to clear the accumulation display.

Count the next batch of pieces in the normal manner.

With the batch of pieces on the weight platform press M+

The weight display will indicate 02 (two batches) and the pieces will be accumulated. The TOTAL display will display the current accumulated total.

Press the ENT key to clear the accumulation display.

Continue accumulating the desired number of batches up to a maximum of 99.

To view the total accumulations press the TOTAL key from the normal weighing/counting mode.

Press MC to clear the accumulation.

## **Auto Shutdown**

To conserve battery life the VW330 can be configured to automatically shutdown after a period of three minutes of no use.

Turn the power OFF. *Note the power switch is located on the bottom of the scale in the front on the right side.*

Press and hold the 'ZERO/MENU' key while turning the power on.

The display will prompt:

◀ d = 0.000x

Cal = XX

A = ON or A=OFF

Press the QTY/Set key to toggle between A=ON (auto shut down enabled) or A=OFF (auto shutdown disabled).

When the desired shutdown mode is selected turn the power off.

## **Calibration**

### **Select the Calibration Unit of Measure, Count by and Weight**

Turn the power OFF. *Note the power switch is located on the bottom of the scale in the front on the right side.*

Press and hold the 'ZERO/MENU' key while turning the power on.

The display will prompt:

◀ d = 0.000x

Cal = XX

A = ON or A=OFF

Where 0.000x is the resolution and XX is the calibration weight.

The bullet '◀' on the display will be pointing to kg or lb indicating the selected unit of measure.

Use the units switch to select the desired calibration unit as indicated by the bullet '◀' lb or kg. *Note the units switch is located on the bottom of the scale in the front on the left side.*

Press the 'TARE/CHG' key to toggle through the available resolutions (d = 0.000x) until the desired resolution is displayed.

Press the 'ENT' key to clear the calibration weight to 00.

Use the numeric keys to enter the desired calibration weight.

When the resolution and calibration weight are set turn the power off.

## Calibration

Turn the power OFF. *Note the power switch is located on the bottom of the scale in the front on the right side.*

Press and hold the 'ENT' key while turning the power on. *There may be a slight delay when powering up in the calibration mode.*

The display will prompt:

COUNT

CT330C

XXXXX where XXXXX is the internal raw weight value.

With no weight on the scale wait for the internal weight value to stabilize. *A small amount of motion is acceptable.*

Press the 'ZERO/MENU' key. The display will flash 'SAVE'

Apply the previously selected calibration weight (see above).

Wait for the internal weight value to stabilize. A small amount of motion is acceptable.

Press the 'ZERO/MENU' key. The display will flash 'SAVE'.

The calibration is complete.

Turn the power off.

Turn the VW330 on in the normal weighing mode and check calibration.

## Warranty Statement

*Virtual Measurements & Control warrants your VB302 instrumentation, under normal use and service to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase.*

*If your VB302 instrumentation fails to work properly during the warranty period due to a defect in materials or workmanship VMC will either repair or replace it at no charge for labor or materials. Replacement units are provided on an exchange basis and will be either new or reconditioned at VMC's discretion.*

*Warranty service may be obtained by returning or shipping your faulty unit prepaid and insured to our nearest repair or manufacturing facility.*

*Failure to exercise caution to protect the equipment from electrostatic discharge damage, adverse temperature and humidity conditions or physical abuse may void the warranty.*

*Under no circumstances will the supplier of the equipment be liable for any incidental, consequential or special damages of any kind whatsoever, including but not limited to lost profits arising from or in any way associated with the use of the equipment.*