TREE®

LW MEASUREMENTS, LLC

Professional Weighing Equipment

MCT Plus SERIES intelligent weighing scale

MID COUNTING SCALE
WITH CHECK-WEIGHING FUNCTION

Operation Manual

Table of Contents

Declaration of Conformity

Declaration of conformity for apparatus with CE mark

We hereby declare that the product to which this declaration refers conforms to the following standards.

Electronic scale: MCT Mid Counting Scales

Imperial version

Metric version

MCT Plus 3
MCT Plus 7
MCT Plus 16
MCT Plus 33
MCT Plus 66

Mark applied	EU Directive	Standards
CE	2004/108/EC	EN 61326-1: 2006

Signature:

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Date: 06. 28. 2016

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Introduction

What you should know about these Operating Instructions:

Tree® Professional Weighing Equipment products are simple to operate.

Nevertheless, you should read through these operating instructions in their entirety, so that you can make optimum use of the full potential and the diverse possibilities of the weighing scale in your daily work.

These operating instructions contain guidance in the form of pictograms and keyboard diagrams, which should help you in finding the required information:

For the labelling of potential hazards and advice, please see Safety below.

Safety

Representations & Symbols

Important instructions, which involve safety, are highlighted with the appropriate mark:

⚠ DANGER

Safety recommendations

When using the weighing equipment in surroundings with increased safety requirements, the corresponding regulations must be observed.

The weighing scale may only be used with the power adapter supplied.
Before connecting the power adapter to the scale, the user must ensure that the operating voltage stated on the power adapter is compliant with the mains voltage.
If not, please contact Customer Service at the address above.

If the power adapter or its cable is damaged, the weighing scale must immediately be disconnected from the electricity supply (pull out the power adapter).

If there should be any reason to believe that it is no longer safe to operate the scale, it should be immediately unplugged from the electricity supply (pull out power adapter) and secured against inadvertent operation.

In carrying out maintenance work, it is essential to follow the recommendations set out in maintenance and servicing.

The weighing scale must not be operated in an area subject to explosion risks.

Care must be taken when weighing liquids to ensure that no liquid is spilled into the inside of the scale or into connections on the rear of the equipment or the power adapter. If liquid is spilled on the scale, it must immediately be unplugged from the main electricity supply (pull out power adapter).

The weighing scale may be operated after it has first been inspected by a service technician.

These operating instructions must be read by each user and should be easily accessible at the workplace at all times.

Weight Scale

The weighing scale consist of certain parts

- Weighing scale body (1)
- The scale-pan (2)
- The adapter (3)
- Operation manual

Your weighing scale

3

Functions

The MCT Plus Series are high-quality electronic precision weighing scales designed to function as counting scales and check-weights with the following specifications.

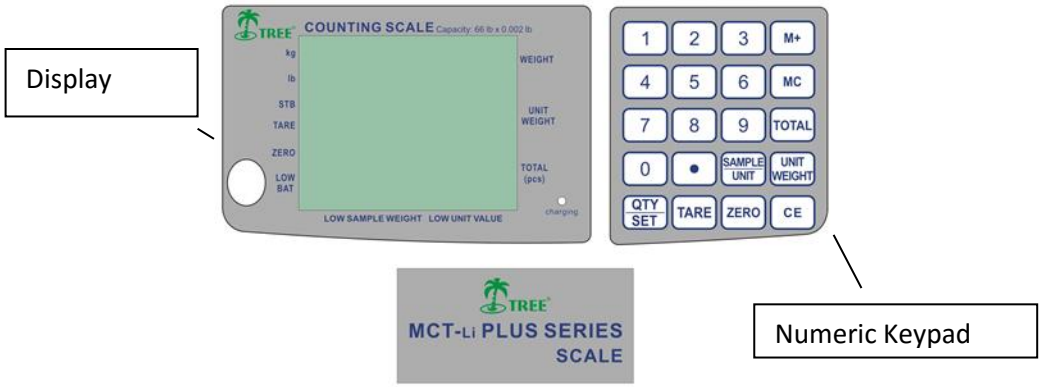
Imperial weight unit version

Model number	Capacity	Division	Weighing pan Size
MCT-P-3	3 lb	0.0001 lb	7.6 x 10 in
MCT-P-7	7 lb	0.0002 lb	7.6 x 10 in
MCT-P-16	16 lb	0.0005 lb	7.6 x 10 in
MCT-P-33	33 lb	0.001 lb	7.6 x 10 in
MCT-P-66	66 lb	0.002 lb	7.6 x 10 in
Package (Standard carton)	27.5×19×21(cm^3)		
Package (Master carton)	4 Units in one box: 64.5×38×36(cm^3)		
Operating Temperature	0-40 C (32-104 F)		
Power source	Rechargeable batteries or AC/DC Adapter 10V/500mA		

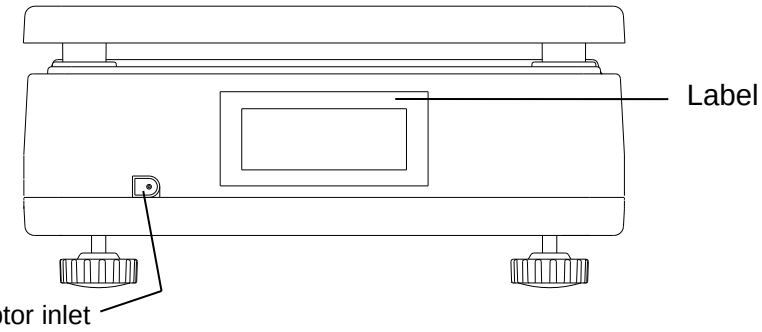
FEATURES

- Auto zero tracking
- Intelligent applications: weight unit conversion, parts counting
- Low battery indication
- Large bright backlit LCD
- Large heavy gauge stainless steel square pan
- Stability indication
- Auto calibration
- Selectable auto back light
- Selectable auto shut off
- Unit switching kg ,g, lb, oz, lb:oz
- Variable kg or lb reference weight calibration software
- Pieces counting
- 1.3 million internal resolution
- 30,000 display resolution
- 24 bit A/D processor
- Highest quality sensor used
- Die-cast aluminum sub support, bottom sensor support and steel thread footing

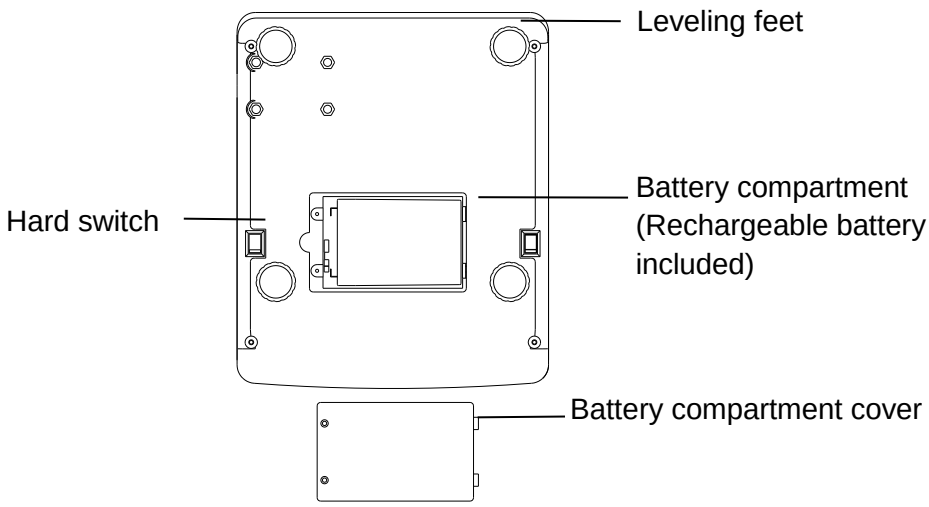
Details of your weighing scale



Back of unit



Underside of unit



Application & Conformity

The Following are instructions of how to correctly use the weight scale:

The weighing scale may only be used for the weighing of solid-materials and of liquids filled into secure containers.

The maximum capacity load of the weighing scale must never be exceeded, otherwise the weighing scale may be damaged.

In using the weighing scale in combination with other devices as well as with devices produced by other manufacturers, the appropriate regulations for the safe use of the relevant attachments and their application in accordance with instructions must be observed.

The weighing scale has been manufactured and tested in accordance with the standards and recommendations set out in the declaration of conformity.

The power adapter supplied for the weighing scale complies with the appropriate electrical protection class.

The following applies to all MCT Plus series weighing scales

Power supply:
Input: 110V or 230V AC (+/-15-20%); 50Hz to 60Hz
Output: 10v DC 500mA

Allowable ambient conditions
Temperature: 0°C - 40°C
Relative humidity: 25% - 85%, non-condensing

If you have any questions on the technical data or require detailed technical information on your balance, please contact your technical representative.

Getting Started

The scale is packaged in an environmentally-friendly carton, which provides optimum protection for the balance during transportation.

We suggest that you keep the original packaging in order to avoid damage if you are shipping or transporting the scale to a different location. It is also the best way to keep it in the best conditions if it will not be used for an extended period of time.

In order to avoid damage, please follow the instructions provided below, when unpacking the scale:

- Unpack the scale carefully.
- When outside temperatures are very low, the scale should be stored for a couple hours and kept in its box in a dry room at normal temperature, so that no condensation settles on the unit when opening the box.
- Check the scale immediately after unpacking for any external visual damage. If there is any damage on scale, contact customer service immediately.
- If the scale is not to be used immediately after purchase, it should be stored in a dry place where fluctuations in temperature are low. (Reference pg.18).
- Read through these operating instruction, before you work with the unit and pay attention to the Safety recommendations (reference Safety pg. 6).

Delivery

Inspect delivery for completeness immediately on unpacking all components.

Checklist for complete delivery

	Component delivered present yes / no
Weighing unit body	
Weighing pan	
Power adapter	
Operating manual	

Assembly & Installation

The weighing scale is delivered in a partly dismantled condition. Assemble the individual components in the following sequence:

- Place your machine on a level, clean, and dry surface to obtain accurate readings.
- Place the plastic platter on top of the scale, flat side facing up so the platter sits firmly on the machine with the four “legs” inserted into the corresponding four receptacles.
- Place the stainless steel platter on top of the plastic platter with the flat side facing up.

Connecting the AC Adapter

The following Safety recommendations must be observed when connecting the balance

⚠ DANGER

The Scale should only be connected to the mains voltage socket with the power adapter supplied. Check before connecting the power adapter to the mains socket, that the operating voltage stated on the power adapter complies with the local mains voltage. If the operating voltage is not the same as the mains voltage, the power adapter must not be connected to the mains socket and contact customer service.

Placement of Scale

The location in which the scale is placed is very important in order for the scale to work to its full potential. Certain conditions can affect the capabilities of the scale, conditions like: the presence of air flow, variations in temperature, and direct sunlight. Please follow the recommendations given below in choosing a location to place your scale.

- Place the scale on a solid, firm and preferably vibration-proof, horizontal base
- Make sure that the weighing machine cannot be shaken or knocked over
- Protect from direct solar radiation
- Avoid drafts and excessive temperature fluctuations
- Avoid placing the scale near or on any magnetic surfaces.

The scale is fitted with one bubble level, and adjustable feet for level-control that allow for small height differences or any unevenness in the surface on which the balance is placed.

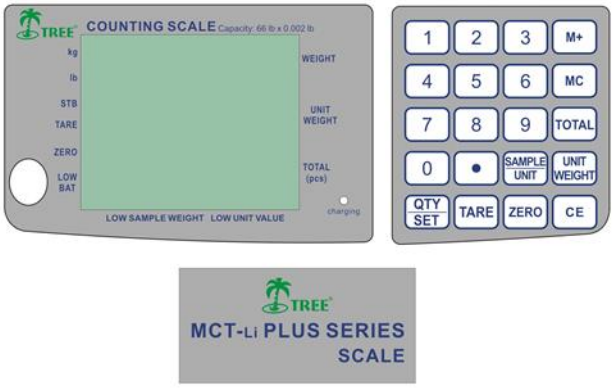
The screw feet must be adjusted so that the air bubble is precisely in the center of the sight glass of the bubble level.

Place the scale horizontally and keep the bubble inside the bubble level aligned with the circle (Fig.1). In order to get exact measurements, the balance must be carefully leveled after each re-location.

(Fig.1)

Fig. 1 Correct leveling with the aid of the bubble level and adjusting feet.

Application Menu



Display messages

- The STABLE icon indicates when the readings stabled.
- The ZERO icon indicates when the weights tared to zero.
- The LO-BAT icon indicates when running out of battery.
- The PCS icon indicates when pieces counting function applied.

Key Functions

- **Weight Display** indicates the Gross or Net weight on the platter (when the tare function is activated).
- **Unit Weight Display** indicates the average or set unit piece weight.
- **Total Display** is the accumulated total pieces on the scale.
- The **ZERO Indicator** turns on when the weighing machine is in ZERO position.
- The **TARE Indicator** turns on when this function is used.
- The **LOW Sample Weight** turns on when the sample number is not large enough for accurate counting.
- **LOW Unit Value** turns on when sample unit weight is not heavy enough for accurate counting.
- **Numeric (0-9) Keys** are used for setting numeric data for sample number, sample weight or to limit the HI/LO settings.
- **Decimal Point (.)** key is used to set the decimal position of sample weight.
- Press the **ZERO** key to set or re-adjust the scale to the correct zero position.
- Pressing the **TARE** key eliminates the gross weight on the platter (box or container, etc.) as the tare weight.
- Press the **Sample/Unit (kg/lb)** to select the desired weighing unit. The **Sample/Unit** key is also used when setting the counted sample numbers on the platter into the machine's memory.
- The **Unit/Weight** key is used when setting the known unit weight data into the weighing machine during normal operations.
- The **CE** key is used for cancelling the numeric setting data or to cancel the previous unit weight data.
- **Qty/SET** key is used for alternating between normal counting and quantity check operations.
- Press the **MEMORY (M+)** key to save the counted data; data can be saved up to 99 times.
- Press the **MC** key to clear or cancel the data in the memory.
- Press the **TOTAL** key to switch between normal counting and recalling memory data.

Function Settings

- Turn off the weighing machine using the hard switch located on the bottom of the weighing machine.
- Press and hold **UNIT WEIGHT** key and then turn on the weighing machine. The display will show "------" and then "b = XX" (beeper), on the first line, A-XX (auto off) on the second line and "L = XX (backlight on the third line.
- Press the **QTY/SET** key to toggle between activating the beeper on or off.
- Press the **TARE** key to select auto off time.
- Press the **ZERO** key to toggle between activating the backlight On, Off, or Auto (Au). To save your settings, and begin weighing, turn the machine off and then back on again.
- When there is no weight on the platter, press the **SAMPLE/UNIT** key to select the weighing unit (kg or lb).

Clearing the total weight:

Press the **TOTAL** key to show the total pieces on the third line of the display.
Press the **MC** key to show the unit that will be cleared.
Press the **CE** key to confirm clear.

Clearing the tare weight:

Place the empty container on the platter.
Press the **TARE** key.
The display will show 0.00000.
When the container is removed from the platter, the **WEIGHT** display will show a minus (-) value which is the weight of the container.

Clearing the previous tare weight:

Remove weight from the platter and ten press the **TARE** key.
The **TARE** indicator will turn off and the **WEIGHT** display will return to zero.

Number setting:

Place the pre-counted X number of sample pieces on the platter. The total weight will be displayed. Set the X number of pieces using the numeric keys and then press the **SAMPLE/UNIT** key.
UNIT/WEIGHT on the display shows the average piece weight of the samples.
TOTAL (pcs) on the display shows the number of sample pieces on the scale. Add in more units and it will show the total number of pieces.

Unit weight setting (when unit weight is known):

Place samples on the scale. Using the numeric keypad, key in the average piece weight. Press **UNIT WEIGHT** on the keypad to save the specified piece weight. The total number of pieces will be shown on the **TOTAL**. Add in more units to be counted. Press the **CE** key to clear previous setting.
Press the **CE** key again to cancel the previous unit weight and sample setting.

Alarm function:

To avoid counting errors, this scale has a useful alarm function to inform the operator of a counting error in the event of low sample size or low sample weight.
The Low Sample weight curser on the display will turn on if the total weight of the sample is below the limit value. The scale will start counting but the error may be high.

Press the **CE** key. Then use a larger sized sample (more weight and key in the new sample size using the numeric keypad, and then press **SAMPLE/UNIT**.

Unit Weight Enhancement:

The weighing machine will automatically adjust and calculate a new average unit weight when more samples are slowly placed on the scale. This ensures higher accuracy as samples are now based on a larger population size.

Lack of Piece Weight:

LOW UNIT VALUE indicator will turn on if the average unit weight of set unit weight is not enough for accurate counting operation. Operator may still use the weighing machine if this indicator is on, but counting error might occur.

Hi / LO check-weighing with counting

The MCT Plus series has a useful check function to inform the operator if the total pieces counted has reached the desired lower limit and the upper limit. This function is designed for packaging applications.
EXAMPLE: if the operator wishes to count 1,000 pieces for every package, he/she can set the lower limit and the upper limit as 1,000 pieces by:
Press the **QTY/SET** key to enter the quantity alarm menu.
Press the **ZERO** key to turn on the check weighing. Display will show CH=ON. Press the **ZERO** key again and the display will show CH-OFF which means the quantity alarm function has been turned off.

To set the lower and upper count limit, press the **TARE** key to select the hi/lo limits.
For example; “L=990,” press 990 on the numeric keypad, then **TARE** to switch over to:
H = 1010, press 1010 on the numeric keypad.
Press the **QTY/SET** key to confirm and return to counting mode.
Put 10 pieces of the sample on the platter and press “10” on the numeric keypad. Then press the **SAMPLE/UNIT** key to store and confirm the sample weight.
Keep adding pieces until it reaches the lowest quantity of “990”. The alarm will sound when you reach 990.
Keep adding pieces until it reaches the highest quantity of “1010” or above. The alarm will sound with a different tone.

Optional auto backlight

Press and hold the “Mode” key, and then press the “On/Off” (icon) key to turn on the scale, the display will show A_ON or A_OFF. Press “Mode” key, the display will show L_ON or L_OFF, press the “Zero” key to select L_ON, L_OFF or L_AU (auto).

Press the “On/Off” key to turn off the scale and then turn it on again to return to normal operation.

Calibration

Note: calibration is done in the factory. Don't re-calibrate the machine unless it is not accurate. The weighing machine should be allowed to warm up for 10 minutes before calibration.

Calibration:

- Press and hold the **ZERO** key, and then press the **ON/OFF** key to turn the weighing machine on. The display will show SCALE on the first line, CAL-0 (flashing) on the second line and the AD value on the third line.
- Press the **SAMPLE/UNIT** key to select the calibration unit to be used as either kg or lb.
- When the AD value is stable, press the **ZERO** key to calibrate **ZERO**. After 2-3 seconds, the second line will show 0.
- Set the calibration weight by using the numeric key pad (0-9) and then place the calibration weight on the platter. Press **ZERO** to calibrate. Once the stable indicator light is displayed, press the **ZERO** key again. The second line of display will now show 00000. Calibration is now complete.

Note: The ideal calibration test weight is between 2/3 capacity to full capacity in order to get the most accurate weight after calibration.

Turn off the power, then turn it back on again. Place a weight on the platter to ensure weighing is correct. If not, repeat the above steps.

Linearity calibration (for scale technician or factory use):

- Turn on the weighing machine and then turn it off.
- Press and hold the **TARE** key and then turn on the machine. The display will show LINE on the first row, CAL-0 (flashing) on the second line and AD value on the third line.
- When the AD value is stable, press **ZERO**. After 2 or 3 seconds, the second line will show 1.0000.
- Place a 1 kg weight on the platter and press **ZERO** when the stable A/D value is displayed. After 2 or 3 seconds, the display will show 2.0000.
- Place a 2kg weight on the platter and press **ZERO** when the stable A/D value is displayed. After 2 or 3 seconds, the display will show 3.0000.
- Place 1 3kg weight on the platter and press **ZERO** when the stable A/D value is displayed. After 2 or 3 seconds, the display will show 0.0000. Calibration is complete.

Turn off the power, then turn it back on again. Place a weight on the platter to ensure weighing is correct. If not, repeat the above steps.

NOTE: the above linearity calibration is only for MCT-P-7, for other MCT-P capacity, add test-weight according to display value.

Maintenance & Service

⚠ DANGER

For maintenance-work, the balance must be disconnected from the power supply (remove power adapter plug from socket). Also ensure that the balance cannot be connected to the power supply during the work by a third party.

Make sure that no liquid spills into the scale while performing maintenance work. If liquid is spilled on the scale, it must be inspected by a service technician.

Regularly perform maintenance to the weighing pan and the weighing pan holder by removing any dirt or dust from under the weighing pan and on the weighing scale housing. Use a soft brush or a soft, lint-free cloth, moistened with a mild soap solution.

⚠ CAUTION

Never use solvents, acids, alkalis, paint thinners, scouring powders or other aggressive or corrosive chemicals for cleaning; these substances can cause damage to the surfaces of the scale housing.

Transport & Storage

Your weighing machine is a precision instrument, treat it carefully. Avoid shaking, severe impacts and vibration during the transportation. Make sure that there are no marked temperature fluctuations during the transportation and that the weighing machine does not become damp (condensation).

If you would like to take the weighing machine out of service for an extended period, disconnect it from the electricity supply, clean it thoroughly (refer to Maintenance & Service) and store it in a place which meets the following conditions:

- No violent shaking, no vibrations
- Minimum temperature fluctuations
- No direct solar radiation
- Minimum moisture

Warranty

The products are under warranty against factory defects for a period of two (2) years from the date of shipment.

For Customers within the lower 48 states of the continental United States. LW Measurements will pay for fright both ways for the first 30 days after purchase. After 30 days expire the customer is responsible for shipping the product back to us. After the product is received we will inspect it and as necessary we will repair or replace and will ship the product back to the customer at our expense.

Any new scales returned for warranty must be properly packaged in the original box. If they are not properly packed an in the original box, the customer pays for shipping cost. If we determine there is a factory defect, we will pay for the shipping back. If we determine that it is not a factory defect, the customer will pay shipping.

For Customers outside the lower 48 States, including Mexico, Canada, Puerto Rico, Hawaii, Alaska and all other countries, customers must pay for shipping.

Our warranty does not cover misuse or neglect including but not limited to battery or water damage, overloading, and chewed or cut wires. If the product is found to have been misused or damaged by the customer, LW measurements is not responsible for the cost of return.

For warranty claims please go online to **lwmeasurements.com** and fill out the warranty submission form or call your customer service representative.