



***Professional Weighing  
Equipment***

## **Wireless VET Scales**



**LVS+ / LVS-XL+**

## **Operation Manual**

**NOTE: THIS PRODUCT HAS BEEN  
CALIBRATED IN THE FACTORY.  
PLEASE REFER TO THE  
MANUAL  
BEFORE RE-CALIBRATING  
PRODUCT!**

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# 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: Vet Scales series

Imperial version

LVS+ 700

LVS-XL+ 700

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

Signature:



Boon Lim, R & D Manager

Date: 28. 08. 2019

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# Customer Service

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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 machine 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 and symbols

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



## 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.

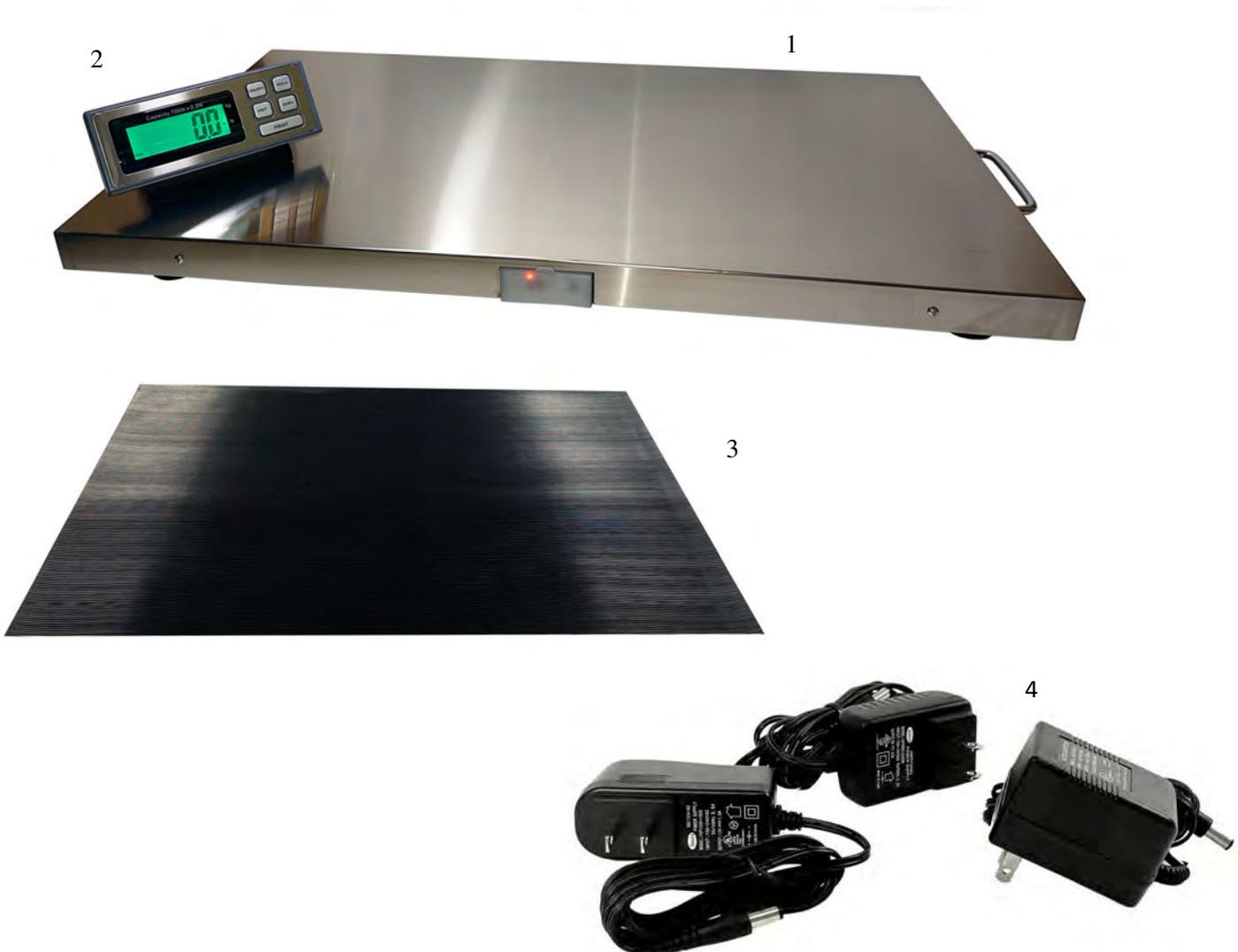
# Weight Scale

## Construction & Functions

The weighing scale consists of the following parts;

- The Scale body (1)
- The Wireless indicator (2)
- Rubber Mat (3)
- The adapter (4)
- Operation manual.

Figure 2.1 Your weighing machine



## Functions

The VET Scale Series are high-quality electronic precision weighing machines with the following specifications.

### **Imperial weight unit version**

<b>Model number</b>	<b>Capacity</b>	<b>Graduation</b>	<b>Weighing Platform Size</b>
LVS+ 700	700 lb	0.2 lb	38 x 20 inches
LVS-XL+ 700	700 lb	0.2 lb	44 x 22 inches
Net/gross weight	LVS+ 700: 37.5 lb / 44 lb LVS-XL+ 700: 44lb / 48lb		
Package (Standard carton)	LVS+ 700: 46 x 25 x 5 inches LVS-XL+ 700: 50 x 31 x 5 inches		
Operating Temp.	0-40°C (32 - 04°F)		
Power source	7.4V rechargeable lithium battery		
	12V/1A AC/DC adapter		

## Features

- Auto backlight
- Auto shut-off
- Wireless indicator
- Display options: 5 1/2 digital LCD
- Peak hold function
- Hold function
- Animal weighing mode
- ZERO range ( 0% - 4% of full capacity)
- TARE range ( 4% - 100% of full capacity)
- AnyCal calibration software
- Optional calibration unit: kg or lb
- RS232 connection
- Stability indication
- Auto zero tracking
- USB connection

## Application & Conformity

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 VET Scale series

**Power supply:**

Input: 110 or 230V AC (+/-15-20%); 50 to 60Hz

Output: 12V DC 1000mA

**Allowable ambient conditions**

Temperature: 5°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 scale, please contact your technical representative.

# RS232 Data interface

1. Connector: DB9



2. Transmissions Settings

Mode: Simplex Asynchronous Serial  
 Data Bit: 8  
 Stop Bit: 1

Baud Rate: 9600  
 Parity Bit: None  
 Data Format: ASCII

3. Transmission Information Format : 20 Byte , blank=20H

1~2	3	4~13	14~18	19	20
'W: '	P	DATA	UNIT	CR	LF

W: Start of Data Transmission=57H+3AH

P: Polarity '+' = 2BH = Positive '-' = 2DH =Negative

DATA: '12.345' = 20H+20H+20H+20H+31H+32H+2EH+33H+34H+35H

UNIT: 'lb' = 6CH+62H+20H+20H+20H

'Kg' = 6BH+67H+20H+20H+20H

CR: = 0DH

LF: = 0AH

## Getting Started

The scale is packaged in an environmentally-friendly carton, which provides optimum protection for the scale 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.).
- 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
Scale body	
Wireless indicator	
Rubber mat	
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.

## Connecting the AC Adapter

The following Safety recommendations must be observed when connecting the scale to the mains:



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.

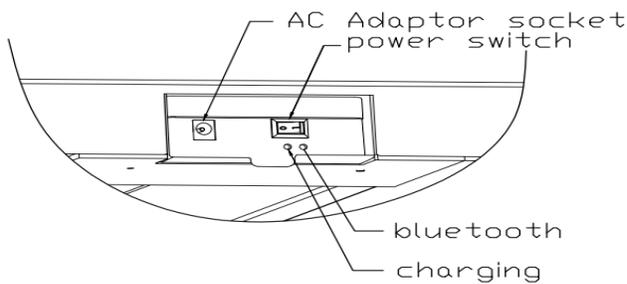
## Placement of Scale

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

## Working Mode

1. Press the power switch of the scale body to turn on the scale.

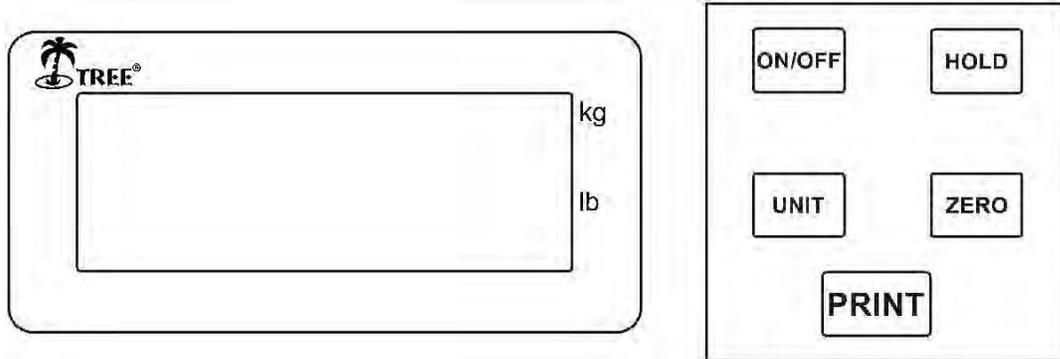


2. Press [ON/OFF] key on the indicator to turn on the indicator. The bluetooth LEDs on the indicator and the scale body both change from flashing to bright, indicating that the indicator and the scale body are connected successfully. The indicator will display a string of self-checking characters from 'FFFFF' to "11111" for a few seconds and "-----" then 0.00, now the scale enter the WEIGH mode.

## Cautions

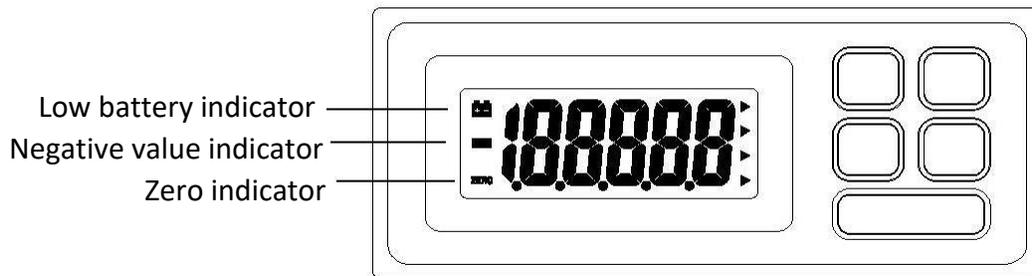
1. If you press [ON/OFF] key on the indicator to turn on the indicator, the bluetooth LED on the indicator is flashing all the time, and the indicator is only backlit with no character display. After 1 minute, the indicator will automatically shut down. The reason for this phenomenon may be that the power switch of the scale body isn't turned on. Another possibility is that the battery of the scale body is too low, please charge in time.
2. When the sign "⚡" is lit, it indicates the indicator is low battery. When the sign "⚡" is flashing, it indicates the scale body is low battery. Please charge the battery for 4 to 6 hours. When the charging LED turns from yellow to green, it indicates that the battery charging is completed. Please unplug the charger (adapter) in time, because overcharging will cause battery damage.
3. Only use the charger (adapter) supplied with the scale and indicator.
4. After charging, the battery does not last long, please contact the supplier to replace new battery.

# Application Menu



Display messages and key functions

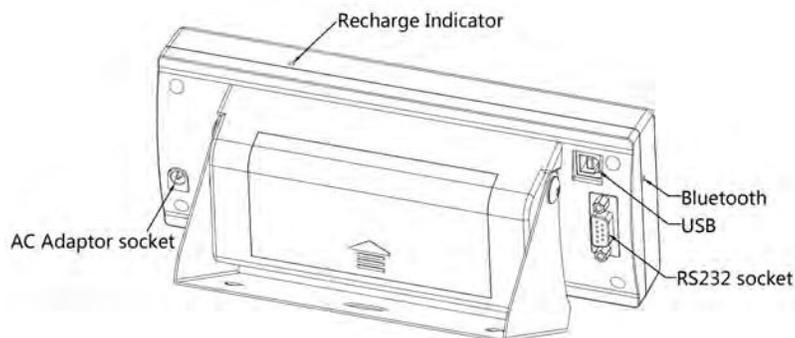
Display messages:



Key Functions:

- The ON/OFF key is to turn the Scale On or Off
- The HOLD key is to store the weight value.
- The UNIT key is to toggle different weighing units.
- The ZERO key: Zero feature if load weight below 4% of full capacity; Tare feature if load weight is between 4 to 100% of capacity.
- The PRINT key is to send data to external device through RS232 connector.

Back view of indicator:



# Program options

## **Interface Settings**

- Press and hold the [HOLD] key, then press [ON/OFF] key to turn on the scale, the display will show A-ON or A-OFF.
- Press [UNIT] key the display will show L-ON, L-Au or L-OFF.
- Press [UNIT] key again to enter Parity mode, the display will show P-XXX.
- Press [ZERO] key to select CON, STB ,OFF, KEY.
  - a)OFF stands for serial data output disabled.
  - b)KEY stands for manual mode by pressing [PRINT] key.
  - c)STB stands for automatic print when scale is stable
  - d)CON stands for continuous print.
- Press [ON/OFF] key to turn off the scale.

## **Setting Auto Shut off**

- Press and hold the [HOLD] key, then press [ON/OFF] key to turn on the scale, the display will show A-ON or A-OFF, indicating that the scale enters the menu of setting auto shut off.
- Press [ZERO] key to select ON or OFF.
  - a) ON means auto shut off function activate.
  - b) OFF means auto shut off function inactivate.
- Press [ON/OFF] key to turn off the scale.

## **Setting Backlight**

- Press and hold the [HOLD] key then press [ON/OFF] key to turn on the scale, the display will show A-ON or A-OFF.
- Press [UNIT] key to enter next menu, the display will show L-ON , L-OFF or L-Au, indicating that the scale enters the menu of setting backlight.
- Press [ZERO] key to select ON, OFF or Au.
  - a) ON means the backlight is always on.
  - b) OFF means the backlight is always off.
  - c) Au means auto backlight function activate, when the weight isn't zero, the backlight will be on; otherwise, it will be off.
- Press [ON/OFF] key to turn off the scale.

## Setting power-on mode

- Press and hold the [HOLD] key then press [ON/OFF] key to turn on the scale, the display will show A-ON or A-OFF.
- Press [UNIT] key three times to the menu of setting the power-on display, and the display will show J-ON or J-OFF.
- Press [ZERO] key to select ON or OFF.
  - a) ON means showing zero when turn on the power.
  - b) OFF means showing weight placed when turn on the power.
- Press [ON/OFF] key to turn off the scale.

## Working mode settings

- Press and hold the [HOLD] key then press [ON/OFF] key to turn on the scale, the display will show A-ON or A-OFF.
- Press [UNIT] key four times to enter the menu of setting weighting mode, and the display will show F-XXX.
- Press [ZERO] key to select Nor or PEA or Ani.
  - a) Nor means normal weighting function activate.
  - b) PEA means peak hold weighting function activate.
  - c) Ani means animal weighting function activate.

## Setting indicator or display

- Continuing from above, when the display shows F-XXX, press [UNIT] key the display will show N-dsp or N-Ind, indicating that the scale enters the menu of setting indicator or display.
- Press [ZERO] key to select N-dsp or N-Ind.
  - a) N-dsp means it can display synchronously as a displayer for another indicator through the RS232 socket.
  - b) N-Ind means it is only a indicator for the scale.

## Setting anti-shock range

- Continuing from above, when the display shows N-XXX, press [UNIT] key to enter the menu of setting anti-shock range.
- The display will show Kd 50 or Kd100 or Kd200 or Kd400, indicating that the scale enters the menu of anti-shock range.
- Press [ZERO] key to select animal scale anti-shock range among 50, 100, 200, 400.

## Setting filter range

- Continuing from above, when the display shows KdXXX, press [UNIT] key the display will show Fd 0.5 or Fd 3 or Fd 5 or Fd 10, indicating that the scale enters the menu of setting filter range.
- Press [ZERO] key to select animal scale filter range among 0.5, 3, 5,10.

## Setting filter time

- Continuing from above, when the display shows Fd XX, press [UNIT] key the display will show Ft 1 or Ft 2 or Ft 3 or Ft 4, indicating that the scale enters the menu of setting filter time.
- Press [ZERO] key to select animal scale filter time among 1,2,3,4.

## Setting Unit ON/OFF

- Continuing from above, when the display shows Ft XX, press [UNIT] key the display will show U-on or U-off, indicating that the scale enters the menu of setting unit on/off.
- Press [ZERO] key to select U-on or U-off.
  - a) U-on means you can switch unit between kg and lb.
  - b) U-off means lb unit will be disabled.
- Press [ON/OFF] key to turn off the scale.

**NOTE: Please kindly note that Kd, Fd, Ft work only in F-Ani mode .**

## Hold function

- Press the [ON/OFF] key to turn on the scale, place the item on the platform.
- Wait for the readings to stabilize, press the Hold” key, the “. “ indicator will show.
- Remove the item from the platform, the readings will still remain on the display.
- Press the “Hold” key to quit hold function mode.

# Calibration

## Using an External Calibration Weight

Calibration is generally required when the weighing machine is initially installed or if the weighing machine is moved to a substantial distance from the original location. 30 minutes of warming up of the scale is always needed before initial calibration.

### ***A reminder when operating our larger capacity scales:***

*The scales of the LVS+ / LVS-XL+ and LC-VS+ series are calibrated at the factory. Usually no calibration is necessary unless major inaccuracies are observed. If calibration is deemed necessary, an appropriate test weight of at least 2/3 of the full capacity of the scale should be used to obtain accurate weighing.*

### **Calibration procedure:**

- Press and hold the [ZERO] key and then press the [ON/OFF] key to turn on the scale, the display will show CAPu=
- To set the capacity of the scale; Press the [UNIT] key to select lb. or kg., then press the [HOLD] key to confirm. Press the [HOLD] key again and then the [UNIT] key to select the capacity, then press [HOLD] to confirm, the display will show CAP.
- Press the [HOLD] key again, the display will show CALu=, then press the [UNIT] key to select unit of measurement kg. or lb., a triangle icon will display to indicate kg. Or lb., press the [HOLD] key to confirm, it will show CALu= again.
- Press the [HOLD] key again, the display will show CAL, press the [UNIT] key to set calibration weight, display will show XXXXX with a flashing digit, press the [UNIT] key to move the flashing digit to right, press the [ZERO] key to increase the value of the flashing digit, press the [HOLD] key to confirm, it will show CAL again. (We recommend a calibration weight at least 2/3 of the full capacity to get an accurate weighing)
- Press the [PRINT] key, the display will show CAL and then the AD value, press the [UNIT] key when the stable indicator displayed, it will show the flashing calibration weight.
- Place the known test weight on the platform, press the [UNIT] key after stable indicator displayed, it will show -----, and then the AD value, the calibration is complete.
- Press the [ON/OFF] key to turn off the scale, remove the test weight from the platform.
- Press the [ON/OFF] key to turn the scale on to test if the weighing is accurate, if not, repeat above steps.

## Maintenance and service

The weighing machine must be treated carefully and cleaned regularly. It is a precision instrument.



For maintenance-work, the scale must be disconnected from the power supply (remove power adapter plug from socket). Also ensure that the scale 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.



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

LW Measurements products are under warranty against factory defects for a period of two (2) years from the date of shipment for Customers in the continental United States.

LW Measurements will pay for freight both ways within the first 30 days of purchase if technical support is required. (Determined by our certified Technical Support Team) In the event technical support is needed the customer is responsible for shipping the product back to us after the 30 day period has expired. Once the product is received, the technical support team will inspect and as necessary repair or replace the scale. LW Measurements 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 in the original box, the customer is responsible for the shipping cost. If we determine there is a factory defect, we will provide a replacement and accept responsibility for shipping back to customer. If we determine that it is not a factory defect, the customer will be responsible for shipping fees incurred.

For Customers outside the lower 48 States, including Mexico, Canada, Puerto Rico, Hawaii, Alaska and all other countries are responsible for all shipping fees incurred.

Our warranty does not cover misuse or neglect including but not limited to battery or water damage, overloading, and chewed or cut wires, keypad damage (punctures), scratched platforms, dented platforms unless caused by shipping (Must report/return within 30 days). 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 call your customer service representative.