TREE®
by LW MEASUREMENTS LLC

LVS-S SERIES

Large Stowaway Vet Scale

LVS-S 700

Operating Manual

Professional Weighing Equipment

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

Table of Contents

Section	Page
Declaration of Conformity	3
Customer Service	4
Introduction	4
Safety	5
Weight Scale	6
Functions	7
Features	7-8
Application & Conformity	9
Getting Started & Delivery	10
Assembly & Installation	11-15
Display Messages	15
Key Functions	16
Function Settings	16-18
Calibration	19-20
Maintenance, Transportation, & Storage	21
Troubleshooting	22

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: Stowaway Vet Scales Series

Available Models

LVS-S 700

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

Signature:

Boon Lim, R & D Manager

Date: 14. 11. 2012

LW Measurements, LLC, 620 Carlson Court, Rohnert Park, CA 94928

Customer Service

USA

LW Measurements LLC,
620 Carlson Court
Rohnert Park, CA 94928

USA
Tel: (707) 542-2185

http://www.lwmeasurements.com

Scan to Contact

Introduction

What you should know about this Operation Manual:

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 of the weighing scale in your daily work activities.

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

For the labeling of potential hazards, please refer to the safety proportion of this operation manual.

Safety

Representations & Symbols

Note: 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 (unplug 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 (unplug power adapter) and secured against inadvertent operation.

During 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 (unplug 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 always be easily accessible at the workplace.

Weight Scale

Construction & Functions

The weighing scale consists of the following parts.

1. **The Indicator**
2. **The Scale Base**
3. **Wall Mount**
4. **Rubber Mat**
5. **Operation Manual**
6. **The Adapter**

1

3

4

5

6

Functions

The LVS-S Series are high-quality electronic precision weighing machines with the following specifications.

Specifications:

Model Number	Capacity	Graduation	Weighing Platform Size
LVS-S 700	700 lb	0.2 lb	19.7 in x 37.4 inches
Net/Gross Weight	LVS-S 700: 77 lb /95 lb		
Package (Standard Carton)	53 x 31 x 16 inches		
Operating Temp.	0-40℃ (32-104℉)		
Power Source	6 x AA dry cells(not included) or AC/DC Adapter 9V DC / 400mA		

Features

1. Auto backlight.

2. Auto shut off

3. Large heavy gauge stainless steel square pan

4. Stability indication

5. Display options: 5 digital LCD

6. ZERO range (0% - 4% of full capacity)

7. Hold function

8. Animal weighing mode

9. AnyCal calibration software

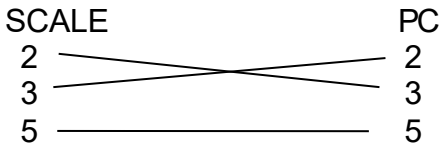
10. Optional calibration unit: kg or lb.

11. Error message indication:

- Err-0 Overload
- Err-5 Unstable when power on
- Err-c Calibration code is not enough or operation error
- Low battery indication

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

M= overload mode
W= normal weighing mode

: = weight information

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
W/M	:	±																CR	LF

Weight information **Unit formation**

Exampla:50kg

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
W	:	+							5	0	.	0	k	g				CR	LF

Application & Conformity

The following are instructions on how to correctly use the indicator:

The scale may only be used for the weighing of solid materials and of liquids contained in secure containers.

The maximum capacity load of the weighing scale must be correctly entered in the scale program, otherwise the weighing scale may be damaged.

In using the scale in combination with other devices including those 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 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 scale complies with the appropriate electrical protection class.

The following applies to LVS-S series Indicators.

Power supply:

Input: 110V AC 50Hz to 60Hz

LVS-S Output: 9v 400mAh

Allowable ambient conditions:

Temperature: 32ºF - 104ºF / 5°C. 40°C

Relative humidity:

25% - 85%, non-condensing

****NOTE: 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 scale during transportation.

We suggest that you keep the original packaging 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 condition if it will not be used for an extended period.

To avoid damage, please follow the instructions provided below, when unpacking the scale:

- Unpack the scale carefully.
- When outside temperatures are very low, the indicator should be stored for a couple hours in its box in a dry room at normal temperature. This prevents condensation from settling on the unit when opening the box.
- Check the scale immediately after unpacking for any external visual damage. If there is any damage to the 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 instructions before you work with the unit and pay attention to the safety recommendations (reference Safety pg. 5).

Delivery

Inspect delivery for completeness immediately upon unpacking all components.

Checklist for complete delivery

Component	Present Yes / No
Scale base / frame	
Wall mount kit	
Indicator unit	
Power adapter	
Operating manual	
Rubber mat	

Assembly & Installation

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

- Mount your machine on a clean and dry surface to ensure you get the best visibility of your readings.

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. Before connecting the power adapter to the mains socket, check 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

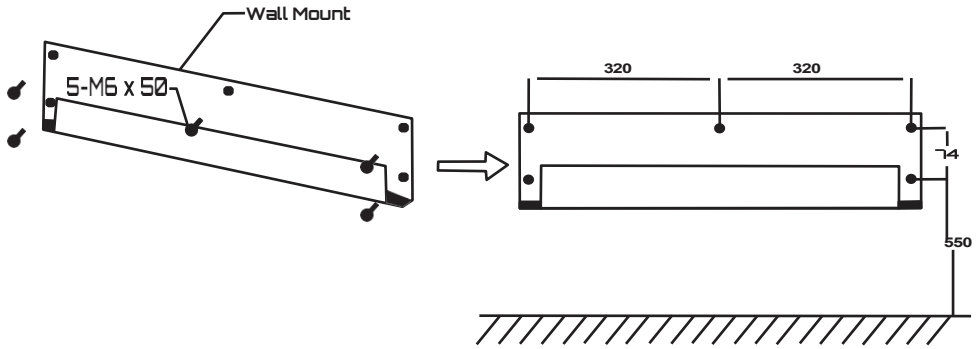
The location in which the scale is placed is very important for the scale to work to its full potential. Certain conditions can affect the capabilities of the scale, such as presence of air flow, variations in temperature, and direct sunlight. Please follow the recommendations given below when choosing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

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

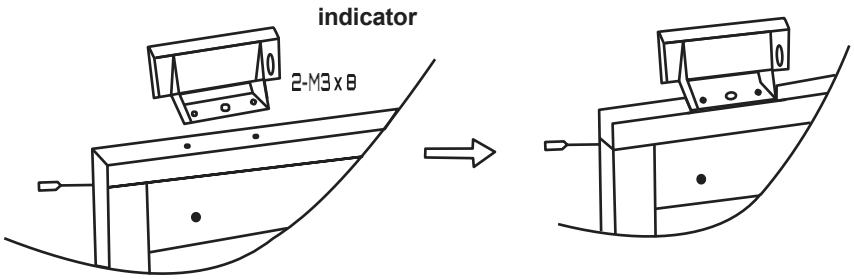
Installing Your Scale

Wall mount kit and installation

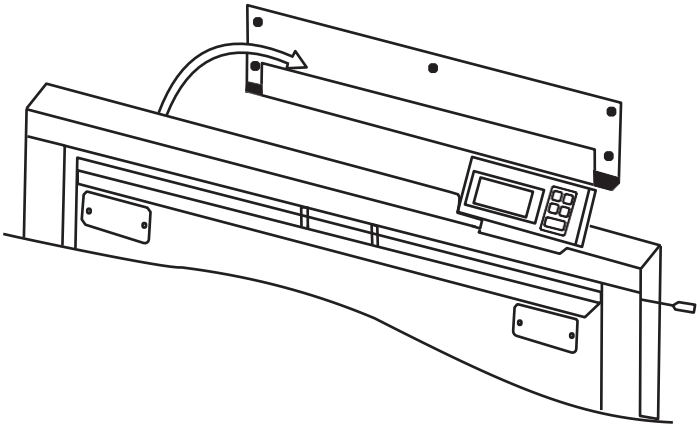
① Fix the wall mount to wall



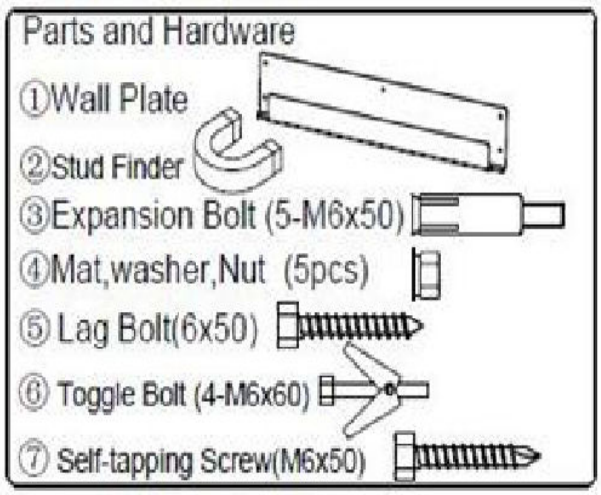
② Install the indicator.



③ Install the scale on the wall mount



Attach wall plate to wall – Bolts and wall plate included.



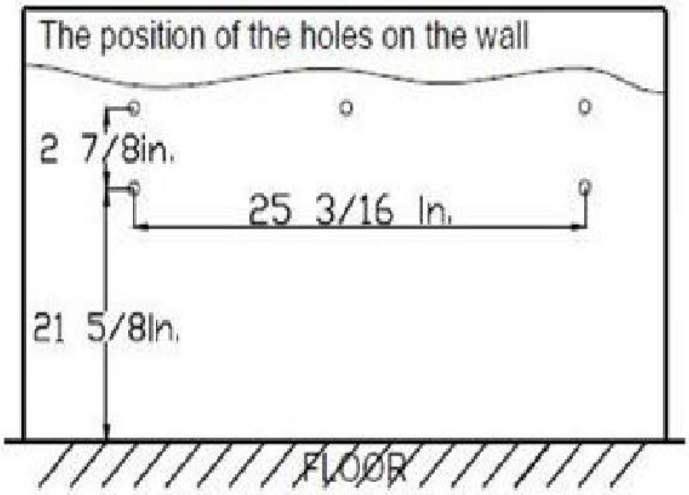
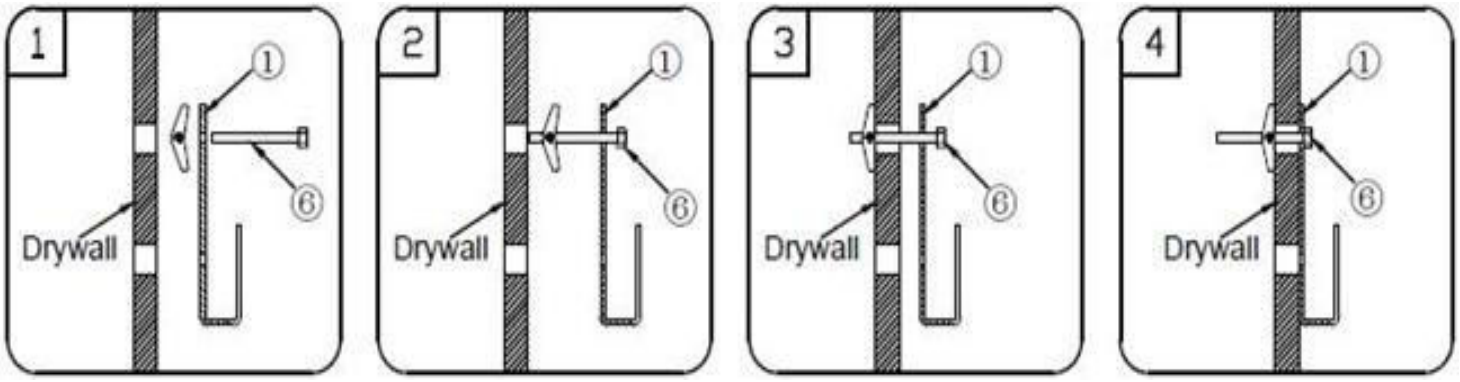
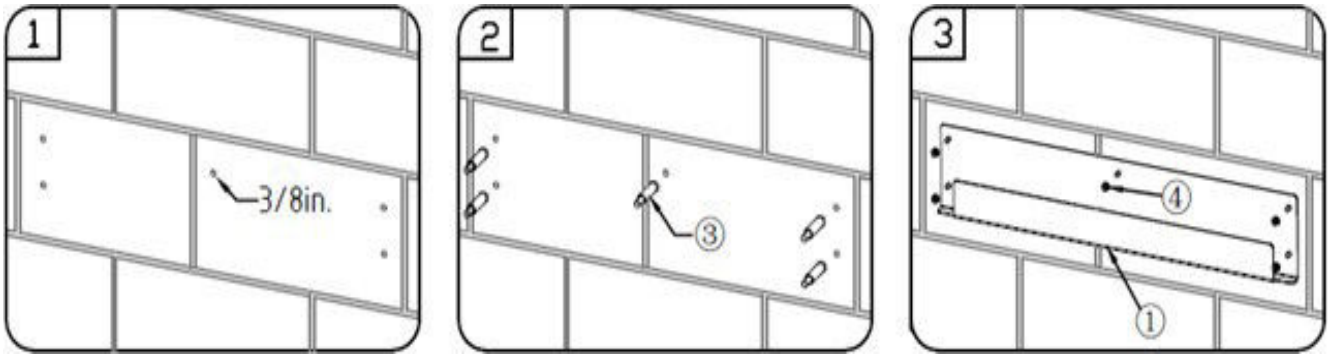


Fig. 1

Installation instructions of Toggle Bolt (6)

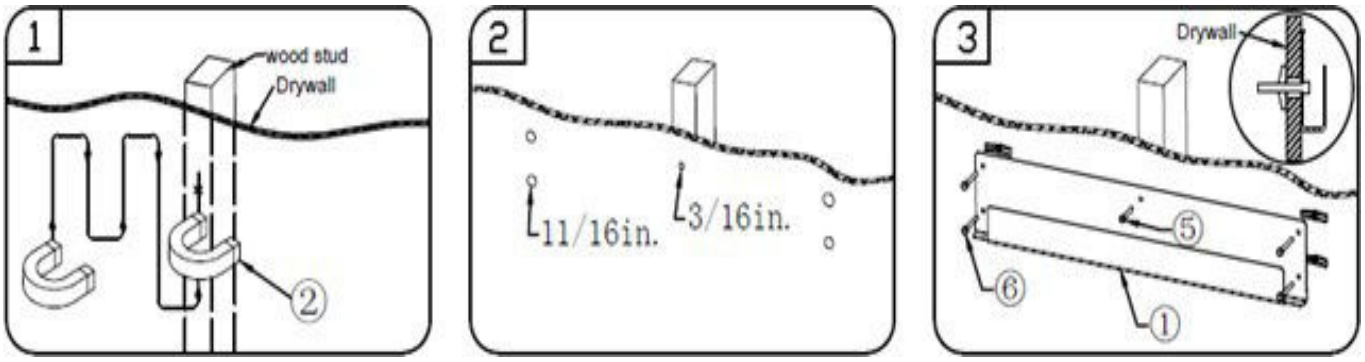


A. Solid Concrete or Concrete Block Option



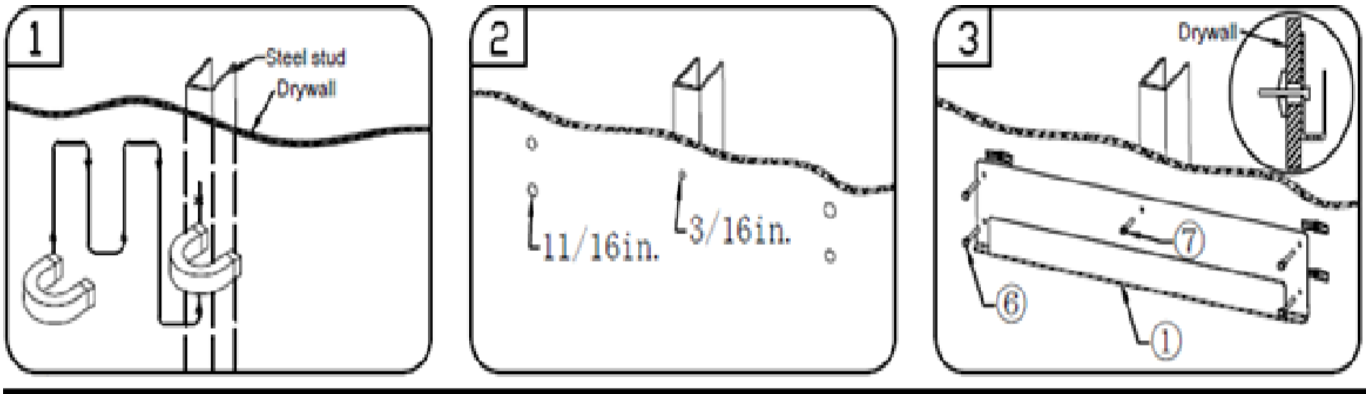
1. Drill five diameter 3/8 in. holes with depth 1 3/8 in., according to the measurement in Fig. 1
2. Insert the five expansion bolts (3) (M6x50) into the drilled holes.
3. Mount the wall plate (1) on the wall with five mat, washer, nut (4) (M6).

B. Wood Stud Option

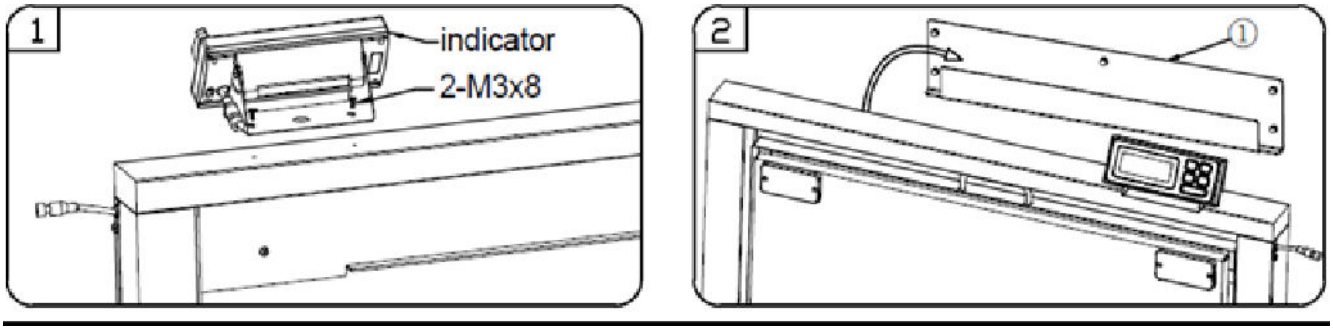


1. Use stud finer (2) to detect the nails on the wood stud and mark the center of the wood stud with a pencil.
2. Drill one diameter 3/16 in hole in the middle of the wood stud with 1 ½ in depth, and the other four side holes with the diameter 11/16 in. drill through the drywall.
3. Mount the wall plate (1) on the wall with one lag bolt (5) (6x50) in middle hole and the other four with Toggle Bolts (6) (M6x60).

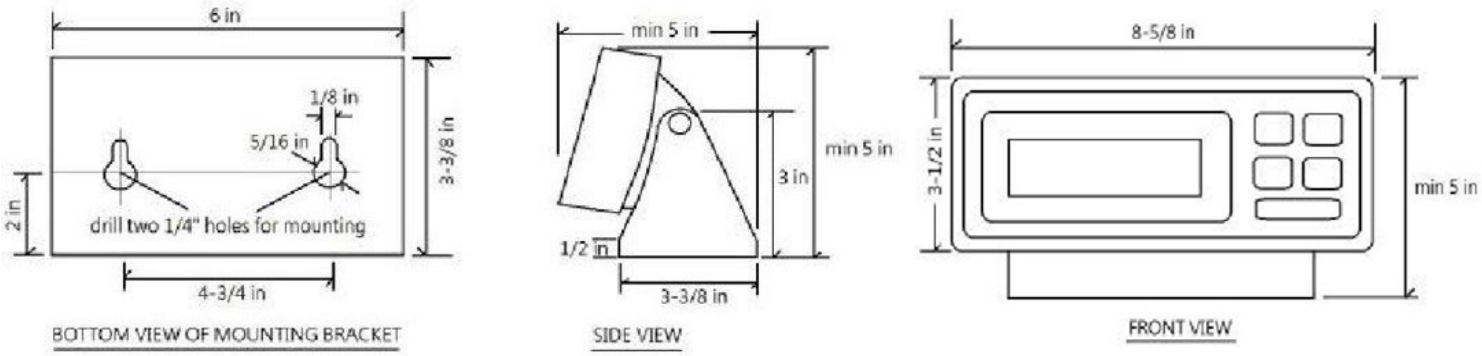
C. Steel Stud Option



1. Use stud finder to detect the steel stud and mark the center of the steel stud.
2. Drill one diameter 3/16 in. hole with depth 1 ½ in. or through the steel stud, the other four side holes with the diameter 11/16 in. through the drywall.
3. Mount the wall plate (1) on the wall with one self-tapping screw (7) (m6x50) in the middle hole and four toggle bolts (6) (M6x60) in the side holes.



1. Install and mount the indicator onto the scale frame with two M3x8 screws.
2. Hang the scale onto the wall mount (1)
3. Connect the scale cable to the indicator.
4. Connect power adapter to indicator and plug the adapter to A/C supply.
5. Press the ON/OFF button to turn the scale on



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 **kg -** Kilograms (1000 grams) is a unit of measure.
- The **lb. -** Pounds (16 ounces) is a unit of measure.

Key Functions

1. ON/OFF (icon) key turns the indicator on or off.
2. HOLD key is used to hold the weight value.
3. Zero key sets display to zero or subtracts the container weight.
4. UNIT key changes the weight units, kg, lb.
5. Print key is used to send data to an external device through RS232 connection.

Function Settings

Auto Shutoff

- Press and hold HOLD key then press ON/OFF key to turn on the scale, the display will show **A-ON** or **A-OFF**, press Zero key to select (**A-ON** means auto power off function activate, **A-OFF** means auto power off function inactivate).

Backlight

- Press UNIT key, the display will show **L-ON**, **L-OFF,** or **L-Au**, press Zero key to select (**L-ON** means auto backlight function is **active**, **L-OFF** means auto backlight function is **inactive**, and **L-Au** means backlight under **auto** mode).

Print Function

- Press UNIT key, the display will show **P-XX**. Press Zero key to select **OFF**, **key**, **con,** or **Stb**. (**OFF** means **RS232** function is **inactive**, **Key** means that you can output the data by pressing Print key. **Con** means that the data outputs **continually**. **Stb** means that the data will output when the reading is **stable**).

Power-On Mode

- Press UNIT key, the display will show **J-ON** or **J-OFF**, press Zero key to select (**J- ON** means showing **zero** when turning on the power, **J-OFF** means showing **weight** placed when turning on the power.)

Working Mode Settings

- Press & hold the UNIT and HOLD keys, then press the ON/OFF key to turn on the scale.

- The display will show **Ani. Su**, press the UNIT key to enter, then press the Zero key to select **ON** (means **animal weighing mode**) or **OFF** (means n**ormal weighing mode**), then press the HOLD key to confirm.

- Press the HOLD key again, the display will show **Ani. Kd**, press the UNIT key to enter, press the Zero key to select **anti-shock range** between **50, 100, 200,** and **400**, press the HOLD key to **confirm**.

**** This is the anti-shock range 50d, 100d, 200d, or 400d. The smaller division range is suitable for smaller animals, the larger division range for larger animals.****

- Press the HOLD key again, the display will show **Ani. Fd**, press the UNIT key to enter, press the Zero key to select **filter range** between **0.5, 3, 5,** and **10.** Press HOLD key to **confirm**.

**** This is the filter range, 0.5d, 3d, 5d or 10d that the scale displays,. For example, if we use LVS 700lb x 0.2lb for weighing a 300lb cow, if we set it to be 0.5d, then the scale will show 299.8lb, 300lb, 300.2lb..., if we set it to be 3d, then the scale will show 299.4lb, 300lb, 300.6lb. 0.5d can get much accurate weighing, but it won't be as stable; 10d will not obtain such an accurate weighing result, but it will be much more stable.****

- Press the HOLD key again, the display will show **Ani. Ft,** press the UNIT key to enter, then press the Zero key to select **filter time** between **1, 2, 3,** and **4**. Press the HOLD key to **confirm**.

**** This is the filter time, 1s, 2s, 3s, or 4s that will take to display the weighing. Weighing will be more accurate if the user chooses 4 seconds (longer displaying time), but not so accurate if 1 second (faster displaying time) is chosen. Press "on/off" key twice to return to normal operation.****

Animal Anti-Shock Range (F-Ani Only)

- Press UNIT key, the display will show **Kd 50**, **Kd 100, Kd 200,** or **Kd 400**. Press Zero key to select **animal scale anti-shock range** among **50**, **100**, **200**, and **400**.

Filter Range (F-Ani Only)

- Press UNIT key, the display will show **Fd 0.5**, **Fd 3**, **Fd 5**, **Fd 10**. Press Zero key to select **animal scale filter range** among **0.5**, **3**, **5,** or **10**.

Animal Scale Filter Time (F-Ani Only)

- Press UNIT key, the display will show **Ft 1, Ft 2, Ft 3,** or **Ft 4**. Press Zero key to select **animal scale filter time** among **1**, **2**, **3,** or **4**.

******NOTE: Kd, Fd, and Ft work in Animal Weighing Mode (F-Ani) only. ******

HOLD Function

- Place the item on the scale platform. Wait for the **stable indicator** to be displayed.
- Press the HOLD key. The " **.** " (**hold indicator**) will turn **ON**.
- Remove the item from the scale platform. The item's weight reading will remain on the display. Now you can also select a **unit** (**lb.** or **kg**) by pressing UNIT key. (**lb.** cannot be selected if **lb.** is disabled in **Function Setting**)

Quit HOLD Function:

- Once an item is weighed and the hold function is enabled, and you want to **quit HOLD function**,
- Press the HOLD key again to **cancel** the ". " (**hold indicator**) and return the scale to weighing mode.

Calibration

Calibration is done in the factory. Don't recalibrate the machine unless it is not accurate. Calibration may be required when the weighing scale is initially installed or if the scale is moved a substantial distance from the original location. The weighing machine should be allowed to warm up for 10 minutes before calibration.

What you need:

1. Using a calibration or test weight that is **2/3** of the max capacity is strongly recommended for recalibration.

2. If you do not have a test weight or calibration weight. You can use any object of "known weight" to calibrate with our scales **AnyCal** Calibration software.

****NOTE: When calibrating even if you use a "known weight" the more exact the weight is the more precise the calibration will be. ****

Prepare for calibration by following these steps:

- When the scale is **OFF** press and hold Zero key then press ON/OFF key. The display will show **CAPU=.**
- Press UNIT key to select **capacity unit kg** or **lb.**(unit **lb.** cannot be selected if the **lb.** is disabled in **FUNCTION SETTING**).
- Press HOLD key to confirm the selection.
- Press HOLD key again to enter the next menu, the display will show **CAP**.
- Press UNIT key to set **capacity**, press UNIT key to move the flashing digit to **right**, press Zero key to **increase** the flashing digit value.
- Press HOLD key to confirm the selection.
- Press HOLD key again to enter the next menu, the display will show **CALU=**.
- Press UNIT key to select **calibration unit kg** or **lb.** (unit **lb.** cannot be selected if the **lb.** is disabled in **Function Settings**).
- Press HOLD key to confirm the selection.
- Press HOLD key again to enter next menu, the display will show **CAL**.

- Press UNIT key to set calibration weight, press UNIT key to move the flashing digit to **right**, press Zero key to **increase** the flashing digit value.
- Press HOLD key to confirm the selection (the calibration weight should be more than **2/3** of full capacity).
- Press HOLD key again to enter next menu, the display will show **DIV**,
- Press UNIT key to select **division**.
- Press HOLD key to confirm the selection.
- Press HOLD key again to enter next menu, the display will show **Adb**, press UNIT key to select (19.20).
- Press HOLD key to confirm the selection.

Start the Calibration Process:

- Press Print key, the display will show **CAL**, then **AD value.**
- Press UNIT key when the **stable indicator** lights, the display will show the flashing **calibration weight**, place the shown weight on the platform.
- Press UNIT key when the stable indicator lights, the display will show "**-----**", and **AD value**.
- Turn **OFF** the scale.
- **Calibration** is **Complete**.
- Turn **ON** the scale, place tested weight to check whether it is correct.
- If not, please repeat the above instructions.

If this device has been previously programmed, please see "Start the Calibration Process" steps above for a simplified procedure.

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** maintain 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.

Transportation & Storage

Your weighing machine is a precision instrument, treat it carefully. Avoid shaking, severe impacts, and vibration during transportation. Make sure that there are no marked temperature fluctuations during 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 that meets the following conditions:

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

The weighing machine should preferably be dispatched and transported in the original packaging to avoid transportation damage.

CAUTIONS

Overcharging will cause permanent damage.

- When the recharging sign "  " indicates, please charge the battery for 8 to 10 hours. When the charging is done, the orange light will turn green.
- Only use the charger (adapter) supplied with the indicator.
- After recharging, if the battery does not last long, replace it with a new battery.

Troubleshooting

Error Code	***Issue***	***Troubleshoot***	***Solution***
ERR-O/0	Overload error	Turn scale off, then back on, and try weighing using weight under max capacity to verify the loadcell still functions.	If scale still registers accurate weight refrain from continued over loading. If error continues loadcell may be damaged.
ERR-Z/2	Exceeded zero tracing range when powered on.	Turn scale off and clear weighing platform. Turn scale back on and attempt recalibration.	If the scale was recalibrated successfully then the error is resolved. If error persists, scale may need a linearity calibration or has a damaged loadcell.
ERR-S/5	Scale not stable when powered on.	Make sure scale is stable when powered on. Do not touch, shift, or place anything on the weighing platform until after the countdown.	If error persists, scale may need recalibration. If error continues after recalibration, then loadcell may be damaged.
ERR-C	Calibration weight was not entered during calibration	Enter calibration weight during calibration process.	If error persists, call support.
ERR-P	Counting set error	Place sample before entering counting settings.	If error persists, call support.
ERR-L	Calibration weight was not placed during calibration.	Be sure to place weight when recalibrating.	If error persists, call support.
ERR-E	Software issue	If error persists, call support.	If error persists, call support.
ERR-B/6	Low battery error	Attempt to charge battery.	If error persists, battery will need to be replaced. Make sure to not leave scale with rechargeable battery plugged in constantly.
For any error that is not shown on this list or that persists after troubleshooting you will need to contact support.			

TREE®
by LW MEASUREMENTS LLC

We are genuinely grateful for your recent purchase. Your decision to choose TREE by LW Measurements means a lot to us.

Your support enables us to continue creating and providing high-quality products and services. We hope you enjoy your new scale and that it brings you as much satisfaction as it brings us to serve customers like you.

We would love to know what you think of our TREE products and your experience with us. If you have a chance, please visit www.lwmeasurements.com and leave a review.

Thank you for being a part of the LW Measurements family. We look forward to serving you again in the future.

All TREE products are designed in the U.S.

Scan to Contact Us

OR

Call:707-542-2185

Fuzhou Furi Electronics Co.Ltd