

# ARLYN Ultra Precision Scales

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Surface Acoustic Wave (SAW) Series

Models with MKE-5 Indicator

SAW Scale Instruction Manual



*advancing the science of separation™*

Ultra Precision Scales  
Surface Acoustic Wave (SAW) Series  
All Models

SAW SCALE  
Instruction Manual

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v12.0.071217

**Table of Contents**

Your New Ultra Precision Digital SAW Scale . . . . . 1

    Scale Version . . . . . 1

    Features . . . . . 1

    Precautions. . . . . 3

    Best Conditions for Weighing . . . . . 3

    Initial Set-Up and Operation . . . . . 3

    Startup Caution . . . . . 4

Controls and Indicators. . . . . 4

    Main Display Screen. . . . . 4

    Front Panel / Keyboard. . . . . 5

Calibration . . . . . 6

    Recommendations . . . . . 6

    Overview . . . . . 6

SAW Correction . . . . . 6

Quick SAW Correction . . . . . 7

SAW Scale Full Calibration . . . . . 8

System Operation . . . . . 8

    Basic Menu Operation . . . . . 9

    Tare Functions . . . . . 9

    Tare Settings and Tare Definitions . . . . . 9

    Tare Settings . . . . . 10

    The System Menu . . . . . 11

Configuration and Calibration . . . . . 13

Platform Setup . . . . . 13

    Important Selections. . . . . 13

    Other Items. . . . . 13

    Parametric Settings . . . . . 14

    Filtering and Accuracy . . . . . 15

    Advanced Setup and Diagnostics. . . . . 19

Troubleshooting . . . . . 22

    Scale Reading is Zero and Will Not Update . . . . . 22

    Scale Reading is Fluctuating Wildly. . . . . 22

    Scale Reading is Different on Different Areas of the Platform . . . . . 23

    Scale Corners Properly But Does Not Indicate the Correct Weight. . . . . 23

Menu Tree . . . . . 24

Specifications . . . . . 25

Limited Warranty. . . . . 26

## Your New Ultra Precision Digital SAW Scale

Congratulations on your purchase of an Arlyn Ultra Precision Digital SAW Scale. SAW stands for Surface Acoustic Wave. This Scale offers a combination of versatility, accuracy and simplicity in an easy to use and easy to maintain package. Advanced menu driven operating software, large memory capacity and an easy to use menu structure allows the scale to be configured for almost any application. To obtain the best performance and greatest utilization from your scale, read this instruction booklet completely and carefully.

## Scale Version

This manual only applies to scale firmware version S12.xxx. If your scale has version is S6.1xxx, this manual will not work for you. Please contact our customer representatives for the correct version of the manual. The firmware version is shown when the scale is booted up. The version number can be seen at the bottom right of the screen during the logo splash.

## Features

- Ultra Precision scale using patented SAW technology
- Resolution of up to 1 part in 100,000
- Easy to read, LCD Graphics display
- Automatic Calibration
- Multiple Tare Weights
- No Moving Parts
- Positive Overload Stops (most models)
- Large Memory Capacity
- Eight Unit Conversions Standard
- High Accuracy Parts Counting on Many Models
- Automatic or Numeric Entry Tare
- Sealed "Click-Type" Control Panel
- Stainless Steel Load Cell
- Computerized Self Testing
- Automatic Zero Tracking
- Full Text Floating-Point Entry
- On Line Help

- Optional Time and Date
- Optional Battery Operation
- Optional Weight Average Function
- Optional Configurable RS-232 Port
- Optional Setpoints
- Optional Analog Output
- Optional Windows Interface Software

## Precautions

1. Prevent inflammables and liquids from entering scale head.
2. Always use the wall transformer when using AC outlet. NEVER replace the wall transformer with a plug. This could cause electrical shock and severely damage to the scale.
3. Allow clearance on all sides of scale platform for accurate weighing.
4. Do not drop large loads on scale platform.
5. NEVER EXCEED THE RATED CAPACITY OF THE SCALE.
6. Do not pull on the connecting electrical cables.
7. Make sure that the scale and ramps are properly secured to the floor (most models).

## Best Conditions for Weighing

1. The scale should be level.
2. Best operating temperature is about 68 degrees F.
3. The weighing area should be kept clean and dry.
4. The surface that the scale is resting on should be of solid construction and not prone to vibrations.
5. Don't install the scale near heater or air conditioner vents.
6. Avoid drafts.
7. Utilize a stable AC power supply. Avoid heavy motorized equipment on the same power line.
8. Do not operate the scale in close proximity of RF transmitters like cell phones and walkie-talkies.
9. Warm-up the scale before use for at least 5 minutes, or leave on "ready" mode.

## Initial Set-Up and Operation

1. Carefully unpack scale from shipping carton. Save packing material for possible future use
2. If the level legs are included separately, then screw one into each corner underneath the scale.
3. Place scale on a level surface and adjust the level legs so that all four legs are touching the surface.
4. If your scale comes equipped with ramps, fix them to the floor using the mounting holes provided. This way the ramp will not move during normal use. Be careful not to let the scale platform rub up against the ramp or any other surface, as this would cause non-repeatability or other inaccuracies.
5. Plug into 117 VAC Wall Outlet. (For KR2i/KMPi/KML models, connect the scale's RS232 connector to the pump's Auxiliary Scale RS232 port).
6. The scale will run some post-initialization processes even after the weight is shown. Please wait 30 seconds before operating the scale. See Startup Caution.
7. Allow 5-10 minutes warm-up time for stabilization and most accurate results. [This is only applicable if the

scale is being turned on after some down time. This does not apply if the scale just went through a power cycle].

8. Now put a known test weight on the platform to see if the readings on the digital indicator are correct.
9. If the reading is not correct, then perform a Calibration procedure as described below before first official use.
10. Items to be weighed may be placed anywhere on the platform, but if heavy items are to be weighed, it is advisable to place them near the center. Many models are equipped with shock absorbers and positive overload stops for protection. Still, care should be taken to avoid putting excessive stress on the load cell system, as when heavy weights are dropped on the platform. It is normal for a small amount of drift to occur over periods of time. For the most accurate readings the scale may re-acquire a true zero by using the ZERO button prior to weighing.

### Startup Caution

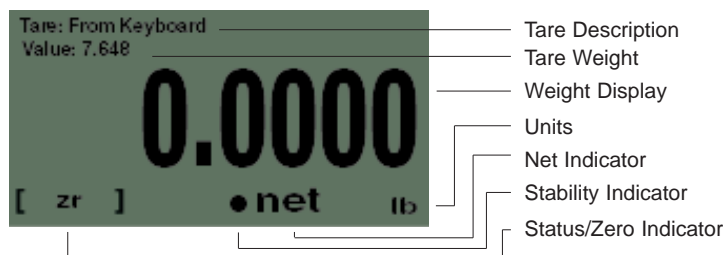
Every time the scale is powered up, **please wait at least 30 seconds** before placing a weight on the scale or pressing any buttons. The scale has to initialize all its parameters and remember your previous settings and that takes a little bit of time.

## Controls and Indicators

### Main Display Screen

The scale is equipped with 128x64 LCD Graphics Display with a wide viewing angle and variable contrast. For normal operations, you have a choice of viewing weight information from two main screens. For parts counting scales, two more screens are available. You can switch screens by pressing the MENU key and then press ENTER to accept the “Next Screen” menu choice. Doing this will step through the screens shown below in order.

### SCREENS 1 & 2



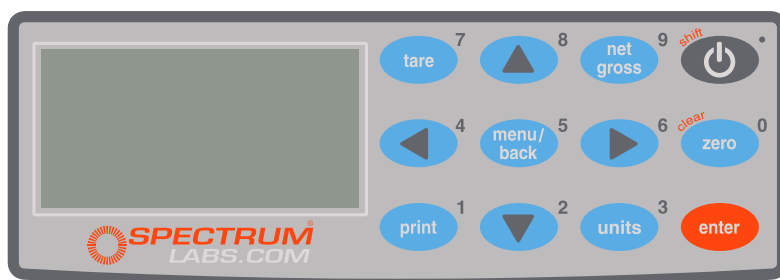
- Weight Display:** Shows the weight on the platform in the current units setting.
- Units:** Shows the active conversion units.
- Stability Indicator:** Shows if the weight on the display is a “Stable Weight”.
- Net Indicator:** Shows “Net” if the indicator is in net weighing mode.

- Status/Zero:** Shows either “Zr” if the platform is at zero, a bar graph showing how close the scale is to maximum capacity or “OVLDI!” if the platform is overloaded.
- Tare Description:** Shows the description of the active tare weight. If the tare was taken from the keyboard using the TARE key it will show “From Keyboard”.
- Tare Weight:** Shows the weight value of the active tare.

### Front Panel / Keyboard

The front panel has a twelve button, click touch key panel that allows easy menu navigation as well as full text and floating point entry.

The main scale functions are shown in black, menu navigation and floating point numeric entry keys are blue and the secondary functions are yellow.



### Keys

- On/Off:** Press once to place the scale in its normal operating mode. Pressing and holding the key will return the scale to the “ready” mode. On battery pack equipped scales, press and hold this key to power it down.
- Tare:** Pressing this key will tare any weight on the platform and switch the scale to the net mode. Holding this key down will clear any active tare weight.
- Net Gross:** Will toggle the indicator between the net and gross mode. The net mode will show the weight on the platform minus any tared weight.
- Units:** Pressing this key allows you to step through the various conversions. By default, the conversions available are pounds, kilograms, grams and ounces. There are four other conversions available that can be activated in the setup menu. This will add troy ounces, pennyweights, grains and a user defined conversion to the list.
- Zero:** Will zero the indicator.
- Menu/Back:** Using this key from the weight display will access the setup menu. In all other areas it is used to back out from menus or to complete an operation.
- Enter:** This key is used to select items and to complete operations in the various menus.
- Arrows:** Are used to navigate and select menu items.



- Shift:** Used for secondary functions and to toggle caps on/off in text editing.
- Clear:** Used in some editing screens to clear input lines and numbers. In some areas this key needs to be pressed and held.
- Number Keys:** Are used in various places to input floating point numbers.

## Calibration

### Recommendations

After familiarizing with various features and options available with the SAW Scale, please place the scale in the environment where the scale will be mostly used and perform SAW Correction **before first official use** to get the scale acclimatized with its current environment. Take into account that the scale needs to warm up time of 10-15 minutes after boot-up.

### Overview

1. Before performing any calibration, the scale must undergo a Full Power Cycle. This means disconnect the scale from the power supply, wait a full minute, and then reconnect it back to the power supply.
2. Once the scale is back on, allow 5-10 minutes of warm up time for initialization and stabilization. Do not operate the scale during this period.
3. Perform SAW Correction as described in next section below.
4. Once SAW Correction is complete, put a test weight on the scale to check for accuracy.
5. The scale is ready to be used. If accuracy is an issue, proceed to the next step.
6. If the weight reading is off, perform Full Calibration as described below. Take note of any errors that may occur during this time. If the Calibration results in an error, refer to the Troubleshooting section for solutions. It is strongly to power cycle the scale once an error is encountered. This allows calibration to take place in a fresh state.
7. If the Calibration fails repeatedly, or if problems with weight do not get resolved through Calibration, refer to Restore to Factory Defaults to restore working factory parameters that are built into the scale.

## SAW Correction

***Use the optional Quick SAW Correction to quickly perform this operation.***

It is highly recommended to perform SAW Correction after the arrival of the scale at the customer's location. This will enable the scale to acclimatize with the customer's environment and provide the customer with the most accurate readings during its operation. This procedure does not require any calibration weight. It takes only few minutes to perform.

Please follow the following steps to perform SAW Correction:

1. Plug-in the scale, wait at least 10 min to let the scale warm-up.
2. If the weight screen is not showing, press ON/OFF button on the indicator --- the weight screen will appear.
3. Press MENU button (#5) ---- setup menu screen will appear.
4. Highlight PLATFORM SETUPS option (use the arrow buttons on the panel) and press ENTER button --- the Platform Setups screen will appear.
5. Highlight SAW CORRECTION line and press ENTER button.
6. A prompt will appear asking you, "Would you like to perform a C1 parameter correction? Press [ENTER] to continue." Press the ENTER button to proceed.
7. A prompt will appear telling you to "Remove all weights from the scale and press [ENTER] to continue."
8. Make sure there are no weights on the platform, then press the ENTER button again on this screen ----the "Processing..." screen will appear. After sometime, the screen will turn back to Platform Setups.
9. Press MENU button several times until reading screen will appear.
10. Scale is ready to operate.
11. If a timeout occurs during this procedure, please unplug the scale and repeat calibration from the start.

If the calibration is taking too long, press MENU to cancel the calibration process. Then shut off the scale. Pull out the SAW connector from the indicator. Wait for 5 seconds. Plug it in again. Then begin the calibration process from the beginning.

## Quick SAW Correction

You can perform a quick SAW Correction within 3 button presses without going through the entire process listed above. To do this, follow the proceeding steps.

1. Press SHIFT (ON/OFF key) + ZERO. A prompt will appear asking you to remove all weights on the platform.
2. Make sure there are no weights on the platform, then press the ENTER button again on this screen ----the "Processing" screen will appear. After that, just wait until the process completes. If a failure happens, remove the power cord from the outlet and then plug it in again. Then try the calibration process again.

That's it. You don't need to do anything else. Place a known weight on the platform to check if everything is reading okay.

***If at any time you received an error while performing this calibration, you must do a hard reboot of the scale (unplug the power adapter out and then plug it into the outlet again) to retry the calibration.***

### SAW Scale Full Calibration

To reduce the likelihood of calibration failure, you must perform SAW Correction first before performing Full Calibration. This is especially important if you have not performed SAW Correction in more than 2 weeks of operation. The following sequence walks you through Full Calibration.

1. Press MENU button (#5) ---- setup menu screen will appear.
2. Scroll to PLATFORM SETUPS and press ENTER.
3. In the Platform Setups Menu, scroll to SPAN CALIBRATION and press ENTER.
4. The next warning message warns you about the consequences of performing an incorrect calibration. Read the warning message, and then press ENTER.
5. Input the calibration weight on the space provided. The calibration weight must be at least 50% of full capacity. If you make a mistake, press ZERO until the mistake clears.
6. Press ENTER to confirm input of calibration weight.
7. Remove all weight from the platform. The current weight is shown at the top left side of the screen. Make sure that the reading is as stable as it can be. Then press ENTER.
8. Wait for the next prompt to appear.
9. When the prompt appears, wait for the weight to get as close to zero as possible. Place the known weight on the platform and wait for the current weight on the top left side of the screen to stabilize. It doesn't matter if the weight on the screen does not match the weight you have put on the platform. The weight shown is of a previous calibration. Press ENTER to confirm the placing of weight.
10. Wait for a few seconds until the calibration procedure completes.
11. Press MENU/BACK to go all the way back to the weight screen.

***If at any time you received an error while performing this calibration, you must do a hard reboot of the scale (unplug the power adapter out and then plug it into the outlet again) to retry the calibration. See the Troubleshooting section for description of errors.***

## System Operation

### Basic Menu Operation

The scale operating system uses a menu driven interface that is both intuitive and easy to use. To access the setup menu press the MENU/BACK key.

There are two basic menu types. The first is a simple list of items. To select an item in the list, use the UP and DOWN ARROW keys to line up on the desired item and then press ENTER.

The second type of menu is a horizontal list displayed along the bottom of the screen. These menu items indicate operations to be performed. To select one, use the RIGHT and LEFT ARROW keys to select the desired item and then press ENTER. Horizontal menus may show a single or double headed arrow on the right side to indicate that there are more selections to the left and/or right that are not displayed.

Horizontal menus and lists are often used together to perform an operation on a specific item. For example, to delete a tare entry, use the UP and DOWN ARROWS to select the desired tare from the list, then use the LEFT and RIGHT ARROWS to select the menu item "DEL" in the horizontal menu. Pressing ENTER will perform the operation.

Selecting menu items will often lead to other menus, sometime drilling down several levels deep. Use the MENU/BACK key to back your way out. Continuing back will eventually bring you back to the top, which is the main weight display screen. Consult the menu tree in the back of the manual for help in navigating menus.

### Tare Functions

The tare function allows you to temporarily remove from the display any weight that may be on the platform. Tare weights are often used in filling processes. For example, the user will place an empty box on the platform. The scale will indicate the weight of the box. The user then presses the TARE key. The scale will now indicate a weight of zero, and will switch to the NET mode. The box can now be filled. The scale will read out only the weight of the material. Switching to the GROSS mode will show the weight of the material plus the weight of the box. To clear any active tare, press and hold the TARE key.

### Tare Settings and Tare Definitions

Tares can also be taken, named, activated and stored permanently through the setup menu. Go to menu SETUP MENU/TARES. A list of options is displayed on the screen, Tare Definitions and Tare Settings.

#### Tare Definitions

In this screen, a list of all tare definitions will be shown. To add a new tare, line up on NEW in the lower menu and then press ENTER. A new tare will be added to the list with the default description of Tare #XXX. The number XXX is assigned by the system by counting up the number of tares and then adding one. It is possible that after adding and deleting a few tares that two tares will have the same description. This is acceptable, albeit confusing, and the description can be changed later. This new default tare will have a weight value of 0.00 lb when first created.

### Editing Tares

You can edit any tare by using the arrow keys to line up on it and the “EDIT” function in the lower menu and then press ENTER. The next screen will show the tare with its description and weight value in pounds. The lower menu allows you to change the description (“DESCR”), enter the value directly (“VALUE”) or acquire it automatically from the platform (“ACQUI”).

### Deleting Tares

To delete a tare from the list simply line up on it and the “DEL” function in the lower menu. Press ENTER to delete it. Once a tare has been deleted it is removed permanently from memory.

### Activating Tares

To activate a tare from the list, line up on it and the “ACTV” function in the lower menu, then press ENTER. The tare will be made active, the scale switched to NET mode and you will immediately be placed back in the weighing screen you were in when you accessed the setup menu.

### Multiplatform Consideration

If the scale is equipped for multiple platforms, then the user is given the option to select which platform the tare will apply to. Use the PLAT option on the lower menu to toggle between activated platforms that will apply to the current tare.

### Tare Settings

In this screen, the way the tares behave can be changed. This also depends on what options you have installed in your system. The selection settings can be changed using the horizontal menu at the bottom of the screen. The following selections apply.

#### Persistent Tare (For all scales)

Selecting this option to “Yes” will allow the scale to maintain the tare activation even when the power is recycled. This will apply to both, stored tares and quick tares (tares from the keyboard). So, if the user activates a Tare from the Tare Definition Screen, and recycles power, the scale will remember the last tare activated. Please note that when the scale is turned on the next time while a tare has been activated, **the scale will not show “0” with an empty platform.** There will be negative number that will likely show up on the screen corresponding to your tared value. Selecting this option to “No” will remove the persistent tare feature. Tares will not be remembered after power is recycled.

#### Analog Enabled (For Analog Output “4-20ma” equipped scales only)

By default, if the user tares a weight from the platform (and the screen shows zero weight), the analog output will continue to detect the weight even if the screen shows zero, and therefore continues to produce the analog equivalent of the weight. Selecting this option to “Yes” will allow the activated tares to affect the 4-20ma analog output. For example, if the user tares a weight from the platform, and the screen shows zero weight, then this time, the analog output will produce 4ma (equivalent of 0 weight). In effect, enabling this option will allow the analog output to reflect exactly what is on screen regardless of the weight on the platform.

## The System Menu

The system menu contains many useful features for checking and configuring your scale. To access, press the MENU button, then select SETUP MENU->SYSTEM. Each feature is outlined below.

Any feature that is not described here should not be touched. Any attempt to do so may severely affect your scale. Each feature is outlined below.

### Backup

Use this function to create a backup of the current scale configuration internally. Use this function and follow the prompts on screen to perform a backup of your scale.

### Restore

Use this function to restore a backup of a previous scale configuration. This is helpful if you already created a backup of your previous working configuration. Use this function and follow the prompts on screen to restore of your scale to a previous backed up configuration.

### Restore to Factory Defaults

If the scale is not performing properly, and all other troubleshooting methods have failed, then the last resort is to restore the scale back to its factory calibrated settings. Use this function and follow the prompts on the scale to complete it.

To restore the scale back to Factory Defaults, perform the following steps:

1. Completely unplug the scale. Wait for a few minutes, then re-plug power to the scale.
2. Press the MENU button and go to SYSTEM. Press ENTER.
3. In the System Menu, scroll to SAW Scale Setup and then press ENTER.
4. Scroll down and select RESTORE TO FACTORY DEFAULTS. Press ENTER.
5. If there are any warnings that popup, just press ENTER to confirm.
6. If the Restore was successful, the scale will automatically reboot.
7. Wait for the scale to settle.
8. Place a test weight to see if the scale is reading appropriately.

### Startup Parameters

The following startup parameters can be set here:

1. The startup screen and conversion units can be set here.
2. The "ready" prompt and the splash screen can be enabled/disabled.
3. Zero lock can be enabled/disabled. Zero lock disables the front panel ZERO key. When this function is enabled the user must press the ZERO and the PRINT key simultaneously to zero the scale.

**Scale Description / Scale ID Number**

Each scale can be assigned a unique description and ID number. This is useful for printing labels and other processes.

**Display Contrast**

Allows you to adjust the contrast of the display for optimum viewing.

**Display Update Speed**

The display update speed can be adjusted from .1 to six seconds.

**Auto Shut-Off**

Auto Shut-Off allows you to set your scale to automatically shut off when a preset time limit has been reached and there has been no activity on the scale. This feature is mainly used on battery pack equipped scales to prevent the battery from inadvertently being deep discharged. Auto Shut-Off can also work on non-battery equipped scales but its operation is slightly different. In a battery equipped scale the unit will completely shut down and the display will blank.

The scale can later be turned on again using the normal means. On non-battery equipped scales, the display will blank but the scale will remain in the same condition as when it shut down. Zero, active tare and active parts counting sample as well as the current screen will all be retained. Pressing any key will return the scale to its normal operating mode.

An inactive scale can be defined as no keys being pressed, and there has been no activity on the platform. It should be noted that anything that causes a small increase or decrease in the platform reading will be considered an active platform. Avoid vibrating surfaces, digital filtering constants of non-factory default values, or anything else that causes the platform reading to drift if this feature is used.

To configure Auto Shut-Off, go to the menu SETUP MENU/SYSTEM/AUTO SHUT-OFF. There are two settable options available.

**Activate – ACT :** Activates/deactivates the auto shutoff feature.

**Time Interval – TIME:** Is the time, in minutes, that the unit will shutoff due to inactivity. Any time from 1 to 25 minutes can be used.

**Decimal Truncation**

This function allows you to truncate the least significant decimal place from the displayed weight. This does not affect the readability and the accuracy of the scale. It also does not affect the weight outputs to the various communication options.

## Configuration and Calibration

### Platform Setup

To access the Platform Setup Menu, press the MENU button to bring up the Setup Menu. Select PLATFORM SETUPS option and press ENTER.

The sections below describe what each selection does in this menu. Any option that is not described here should not be touched. Any attempt to do so may severely affect your scale.

### Important Selections

To access the Platform Setup Menu, press the MENU button to bring up the Setup Menu. Select PLATFORM SETUPS option and press ENTER.

The sections below describe what each selection does in this menu. Any option that is not described here should not be touched. Any attempt to do so may severely affect your scale.

The two most important selections are:

1. Span Calibration
2. SAW Correction

### Span Calibration

Span calibration adjusts the platform's sensitivity so that the display reads correctly. A calibrated weight is required to perform this and the procedure is outlined above in the SAW Scale Full Calibration section.

### SAW Correction

This procedure corrects parametric deviances that naturally occurs over time with the SAW load cell. Whenever the scale starts to show some odd behavior (such as weights not reading accurately, or slight jumping), this should be the first procedure to try to mitigate these issues.

### Other Items

Other selections on this menu are:

1. Edit Description
2. SAW Diagnostics
3. \*Resolution-Overload\*
4. CAP Zero
5. Zero Tracking



6. Stability Control
7. Software Filter
8. Zero/Motion Detection
9. Auto Zero
10. \*Platform Auto Setup\*
11. Load Cell ID#

***\*These items are for Advanced Use only. Accessing and changing them in any way without proper supervision would adversely affect your scale.***

## Parametric Settings

### Edit Description

Allows you to edit fourteen-character description can be assigned to the platform. The default description is "P1". This should not be changed for any reason unless you want to the description as part of your Print Frame. However, changing the description will not affect the metrological properties of your scale.

### Resolution-Overload

This setting should not be changed unless instructed by a Service Technician.

The scale has the capability of displaying its reading in any of eight standard conversion units. Only four are enabled by default and the user can enable the rest. The conversion units that are automatically enabled are pounds, kilograms, grams and ounces. The remaining conversions are troy ounces, pennyweights, grains and a user defined conversion.

Each conversion unit's resolution can be set individually. To do this, select RESOLUTION-OVERLOAD from the platform menu. A list of conversions is displayed and each active conversion will have a check mark to its right.

Select the conversion you wish to modify and press ENTER. Use ACTV to activate/deactivate it, DPNT to change its decimal point location and CNT to change what the least significant displayed digit will count by. In the pounds configuration (the scale's native conversion unit) you can use OVRL to set the overload limit in pounds.

When setting resolution (DPNT and CNT) care must be taken not to exceed 5000 total displayed counts or a drifting reading may result. The maximum resolution is setup by default by auto setup but can be calculated easily by taking the scale's maximum capacity and dividing it by 100,000. For example, a 50-pound scale's resolution should be .01 pounds ( $50 / 100,000 = 0.0005$ ).

**CAP Zero**

One of the sensors equipped in the scale is called a Capacitor Sensor. Sometimes, this sensor loses its Zero Reference value due to a sudden change in environmental conditions or unexpected user interaction with the scale. This selection performs what’s termed as “Capacitor Zero” operation of the scale. It basically restores the Zero Reference point of the Capacitor Sensor. This operation is useful when the scale is not behaving properly and not weighing properly. When experiencing problems, if SAW Correction does not fix the issue, then CAP Zero operation should be performed next.

**Auto Zero**

The Auto Zero feature allows the SAW Scale to automatically zero out the platform when the weight reading is close to zero. For example, if the reading shows 0.001lb when there are no weights on the platform, the system automatically zeroes out this particular deflection to 0.000lb. The Auto Zero process only happens when the weight reading is within a specific margin of error without compromising accuracy.

**Auto Zero:** With this option selected, the scale will automatically zero out any weight on the platform. This is a good option for environments that are not prone to power failures. Also, it is a great option if you always want to start the scale at zero regardless of what the state of the platform (loaded or unloaded).

**Last Zero:** At initialization, the scale will zero out the platform to the last preserved zero state when the ZERO button was pressed. This means that the scale remembers the last time the ZERO button was pressed. This results in the scale remembering the value of the weight currently on its platform when the scale is shut off. In addition to that, suppose the weight was changed after the scale was shut off, the next time the scale is turned out, it will show the new weight. This is an excellent option for environments prone to power failures. It is also an excellent option if you need to constantly monitor the weight on the platform without interruptions.

**None:** The scale will initialize the platform based on its previous state. It is not a recommended to leave the scale in this option. The scale may start up with an unknown state.

**Filtering and Accuracy**

**Zero Tracking**

This setting should not be changed from default unless instructed by a Service Technician

A scale sitting for long periods of time without weight on the platform is prone to drift from zero due to temperature changes and a number of other factors. Generally, this is not a problem and you can press the ZERO button to return the reading to zero before weighing. Zero tracking, when enabled, will detect small reading changes over time and correct the platform back to zero.

There are four settable options on the setup screen. To modify them, use the left and right arrow keys to line up on the appropriate entry in the horizontal menu located at the bottom of the screen, and then press ENTER. These menu items are as follows:

- Active – ACTV:** Activates or deactivates Zero Tracking.
- Window – WIND:** This is the window range above or below the current ZERO point that needs to be continuously compensated (up to 20% of full capacity) to correct zero shift. For example, over two days, you notice that the scale has shifted in weight by 0.2lbs, even though there is no weight on the platform (and was originally reading perfect 0) or a weight that was constant over two days is now reading 0.2lbs over. This is known as “Zero Shift” and can be corrected using Zero

Tracking. After studying the scale’s behavior on this aspect, we can plug this 0.2lb range in this Window field. Now you will notice that your scale will zero out any deviations that falls within  $\pm 0.2$ lbs.

- Noise Count – NCNT:** This is the noise count of filtering mechanism. This sets the number of weight values that need to be discarded before considering that the new weight value is a new value and not part of the current weight value tracking process. The higher this number, the less accurate the weight value, the faster your performance.

### Software Filter

The raw internal reading from the load sensor contains electronic noise and other factors that can cause the reading to be drifty and non-repeatable. All electronic scales incorporate some sort of filtering to compensate for this. Another use for filtering is to help stabilize a scale when it is used on a surface that is vibrating, in windy conditions, when subjected to RF interference or when used on a noisy power line. Your scale has two stages of filtering. The first is an electronic filter that is permanently enabled and the second is the software filter which is fully configurable.

In general, a low degree of filtering will cause the scale to be quick to react but prone to noise and vibrations. Heavy filtering will eliminate the noise and vibrations but the platform will react slowly to changes in weight. We have by default set up the optimum filtering parameters for general use. These should only be changed in extreme circumstances.

There are four settable options on the setup screen. To modify them, use the left and right arrow keys to line up on the appropriate entry in the horizontal menu located at the bottom of the screen, and then press ENTER. These menu items are as follows:

- Active – ACTV:** Activates or deactivates Software Filter.
- Buffer – BUFFER:** These are the number of averaging slots in the software filter. The higher this number, the slower the filtering process, the more accurate the weight reading.
- Window – WIND:** Set's the weight value window at which you want the filtering to take place.

The standard value for this field could be the scale's resolution.

So, if your scale is at a resolution of 0.02 lb, then set that value to this window. By default, the value has been set in factory.

If you set a lower value than the resolution of the scale, then the scale will be stricter in its filtering and almost all values from the platform will be hitting the noise count giving you a much slower performance.

Set a higher value and the scale will be more lenient in its filtering allowing more noisy values to pass through for processing giving you a better performance but higher inaccuracy in readability. The best way to approach this window is determining the range of fluctuation with the default setting. For example, by observing the scale, you notice that your scale is varying by 1lb. If that is the case, then set the value here to 1lb. You will then get stable readings within this range.

**Noise Count – NCNT:** This is the noise count of filtering mechanism. This sets the number of weight values that need to be discarded before considering that the new weight value is a new value and not part of the current weight value averaging process. The higher this number, the less accurate the weight value, the faster your performance.

**Stability Control**

If the scale display values are not stable due to a noisy or unstable environment and you do not want to estimate the actual value of the weight on the platform, the scale can estimate it for you.

Stability Control is not by any means a filtering mechanism. This feature should only be used if you know that the scale will always be unstable or in constant noise. What this feature does is lock in an appropriate weight based on the stability count and a stability window you have specified in this screen. The weight locked, may not be the most accurate weight of the object placed on the platform, but it is a best guess as computed by the Stability Control in this scale. Once the stability lock has been placed, the lock will not be removed until the platform experiences a weight change greater than the stability window. There are four settable options on the setup screen.

**Active – ACTV:** Activates or deactivates Stability Control.

**Source – SRC:** This sets the primary source of readings that the Stability Control mechanism will use to estimate the best lock-in weight. There are two selections here:

1. A/D Reading - This selection makes the Stability Control mechanism take readings unfiltered and straight from the load cell. This is the fastest and the least complex selection and therefore the default.
2. Filtered - This selection is an advanced selection. With this selection, Stability control uses filtered weights based on parameters set by the Software filter. Selecting this option automatically activates software filter. Make sure the parameters in Software filter are properly set or the scale will behave erratically. Use this selection only if you know what you are doing.

**Window – WIND:** The Window field operates similarly as explained in the Software Filter section.

**S.C. Count – CNT:** This number indicates the number of stable readings within the window set above to qualify a lock in. Suppose this number is set to 3, then the Stability Control mechanism will try to read 3 readings consecutively that are within the window above. If they fall within that window, then the weight will lock in, else, it will reset and start over until it gets 3 stable readings.

**Noise Count – NCNT:** This is the noise count of filtering mechanism. This sets the number of weight values that need to be discarded before considering that the new weight value is a new value and not part of the current weight value averaging process. The higher this number, the less accurate the weight value, the faster your performance.

After Stability Control is activated, an “S” appears at the bottom left of the screen during normal weight readings. While the scale does not have a stable reading, the S will appear crossed out. As soon as a weight has been found, it will lock this weight and the S will be uncrossed. Once the lock has been obtained, the reading will not budge until a weight change greater than the window set has occurred.

**Zero / Motion Detect**

This scale can detect if there is motion on the platform. There are four settable options on the setup screen. The first three are for the motion detect setup. The fourth option controls the zero indicator on the main display. To modify them, use the left and right arrow keys to line up on the appropriate entry in the horizontal menu located at the bottom of the screen, and then press ENTER. These menu items are as follows:

**Active – ACTV:** Activates or deactivates motion detection.

**Motion Window – MOTN:** The Motion field determines the range of weight at which you want to define “motion”. So, if the scale has been set on a moving truck, and you have determined that the scale always is within a certain weight range when the truck is moving normally at normal speeds, you would want to set the Motion window at that range. For example, say you have put a weight on the scale that would read 20lbs on a stable surface. But on the truck, it reads 18-23lbs. This means that your motion window is 5lbs. So now you know that you want to detect motion if and only if it is greater than 5lbs, so you can set the Motion window to 5lbs.

**Time Interval – TIME:** This works along with Motion Window to detect a stable reading. The reading must be stable within the motion window for this length of time (in seconds) in order to be considered a stable reading.

This works along with Motion Window to detect a stable reading. The reading must be stable within the motion window for this length of time (in seconds) in order to be considered a stable reading.

**Zero Window – ZERO:** This controls how close the scale needs to be to the true zero point before lighting the zero indicator (ZR) on the bottom of the main display. For example, if you set the window to 1lb, then any weight from 0lb to 1lb will register as ZR (meaning ZERO condition).

After ZERO/MOTION DETECT is activated, the scale needs to be rebooted for this option to take effect. After reboot, a tiny '○' indicator appears at the bottom of the screen. If the platform is moving, the '○' indicator will show as it is seen here. If the platform is within the bounds of 'No Motion' as set here, then the '●' indicator will be crossed out.

## Advanced Setup and Diagnostics

### SAW Diagnostics

Shows the digital raw parameters of all the sensors equipped within the scale. This screen is primarily used for service and troubleshooting.

### Platform Auto Setup

This setting should not be accessed unless instructed by a Service Technician.

Auto Setup will erase all of the parameters for the selected platform and return it to the default state. It also erases the platform's span and cornering calibration. Auto setup is useful when the scale is first manufactured or when the user inadvertently changes a calibration parameter that adversely affects the scale and then forgets the calibration parameter or its original value. Upon activation, you will be presented with a selection of platform capacities and resolutions. Pick the appropriate entry and then press ENTER. Auto setup will be performed. A span calibration is now necessary.

### Show Raw Counts

This option allows the user to see the unfiltered, unprocessed data coming from the platform for troubleshooting purposes. If the platform is fully operational, these numbers will be live and reasonably stable. If the numbers are not moving, or if they are wildly fluctuating, then something is wrong with the scale. See the Troubleshooting steps for suggested resolutions.

### Restore to Factory Defaults (For v6.119a1 and above)

After trying Zero Calibration and Full Calibration, and making sure your environment is not noisy, the scale is still behaving badly, then you can use this option to restore your SAW scale parameters to factory defaults. This DOES NOT erase your data from the scale (tares, samples, setpoints, etc.) It only resets the parameters of the scale that controls the scale's metrological (weighing) function.

To restore the scale back to Factory Defaults, perform the following steps:

1. Completely unplug the scale. Wait for a few minutes, then replug power to the scale.
2. Wait for the scale to settle (IMPORTANT: Make sure you see the "Done" message at the top of the screen.).
3. Press the MENU button and go to Options Setup. Press ENTER.
4. In the Options Menu, scroll to SAW Scale Setup and then press ENTER.
5. Scroll down all the way and select ""Rest. Factory Def"" (abbreviation for "Restore to Factory Defaults").
6. If there are any warnings that popup, just press ENTER to confirm. Otherwise, the scale should be restored back to original settings.
7. Press the BACK button until you reach the main weight screen. Then unplug the scale.
8. Wait for a few minutes, then replug the scale back again.
9. Wait for the scale to settle (make sure you see the "Done" message flash at the top of the screen.)
10. Place a test weight to see if the scale is reading appropriately.

**[For Factory Use Only]**

DO NOT TOUCH. Pressing any of these options will permanently disable your scale.

Save Settings

Save Fish 2 Fact D

**Enable/Disable SAW Scale Features**

For enabling/disabling Auto Zero, Weight Holding, Remote Terminal and Filter Control Off, scroll to the intended option using arrow keys and press ENTER. If you want to enable the option, press ENTER until a check mark appears near the option and vice versa.

These settings do not take effect until you have exited the menu system. (i.e. go back to main weight screen)

### Time Interval Selection

The time interval feature gives the user the option to choose how fast the SAW Scale platform sends weight information back to the indicator. This could be between 0.2 seconds, 0.5 seconds, or 1 second. By default, lower capacity scales have 0.2-second time intervals. The time interval increases as the capacity specification passes 100 lbs.

Higher capacity SAW scales usually perform better with 0.5-second to 1-second time intervals. The weight readings are significantly stable and are less susceptible to noise and vibration.

It is important to note that if lower capacity SAW scales are to operate in noisy and unstable environments, it is better to increase the time interval for readings for more accurate results.

To set the Time Interval selection:

1. Select Time interval by pressing ENTER on the menu option "Time Interval".
2. A screen shows up telling you the current time interval for updating weights on screen.
3. Press the RIGHT arrow key to change the time interval settings.
4. Press ENTER to confirm your choice, or press MENU to cancel your choice.
5. You will be returned to the SAW scale setup menu.

The time interval only affects how fast the indicator reads the weights. To update the speed of the display, read the Arlyn Scale Instruction Manual on page 10. The display update time is independent of the weight reading time interval. As a result, it is pointless to have the display update time lower than the time interval as this will not bring any definable difference in the update speed of the screen.

The display update time can be set to anything the user wishes. The display update time may be increased to stabilize the weight seen on screen for greater readability.



## Troubleshooting

Your scale has been precisely calibrated at the factory before shipping. It has the capability to adjust its own calibration to a certain degree to compensate for aging electronics, and temperature changes. This being the case, it is possible that you will never have to calibrate the scale. Doing so may leave you with a worse calibration than you started with. Does your scale really need to be calibrated? If so what steps are needed? Follow the steps outlined below to help make this determination.

### Scale Reading is Zero and Will Not Update

1. Make sure that any and all shipping screws are removed from the platform.
2. On platform scales, check that all four level legs are contacting solidly against the floor.
3. If level legs are screwed in all the way then the stud from the level leg may be contacting the underside of the platform not allowing the load sensor to flex.
4. Check to see if the SAW platform is securely connected to the Digital Indicator.
5. Check SAW Diagnostics and see if all the numbers shown on this screen are constantly moving. If any of the numbers is showing 0.000, please call customer service for further assistance.
6. Perform "Restore to Factory Defaults" to fix the issue.

### Scale Reading Is Fluctuating Wildly

1. Scale must be on a non-vibrating surface. Breezes may affect scales of all capacities. Breeze/Wind is much worse than vibrations because wind is additive. It is difficult to filter out the wind added noise. The scale must be put in an environment where wind is not a factor.
2. Scale must be installed on a clean power line. Electric motors, computers or any other devices can cause power line interference.
3. RF interference can cause scale readings to fluctuate. Are there any transmitters nearby like cell phones or walkie-talkies?
4. If the scale is a remote platform type, check to see if the cable from the platform to the indicator is plugged in properly. If so then remove the plug temporarily to check for bent or missing pins.
5. Check for nicks or cuts on the platform cable.
6. Perform a Full Power cycle (disconnect the scale from the outlet) and then perform a SAW Correction.
7. Perform "Restore to Factory Defaults" to fix the issue.

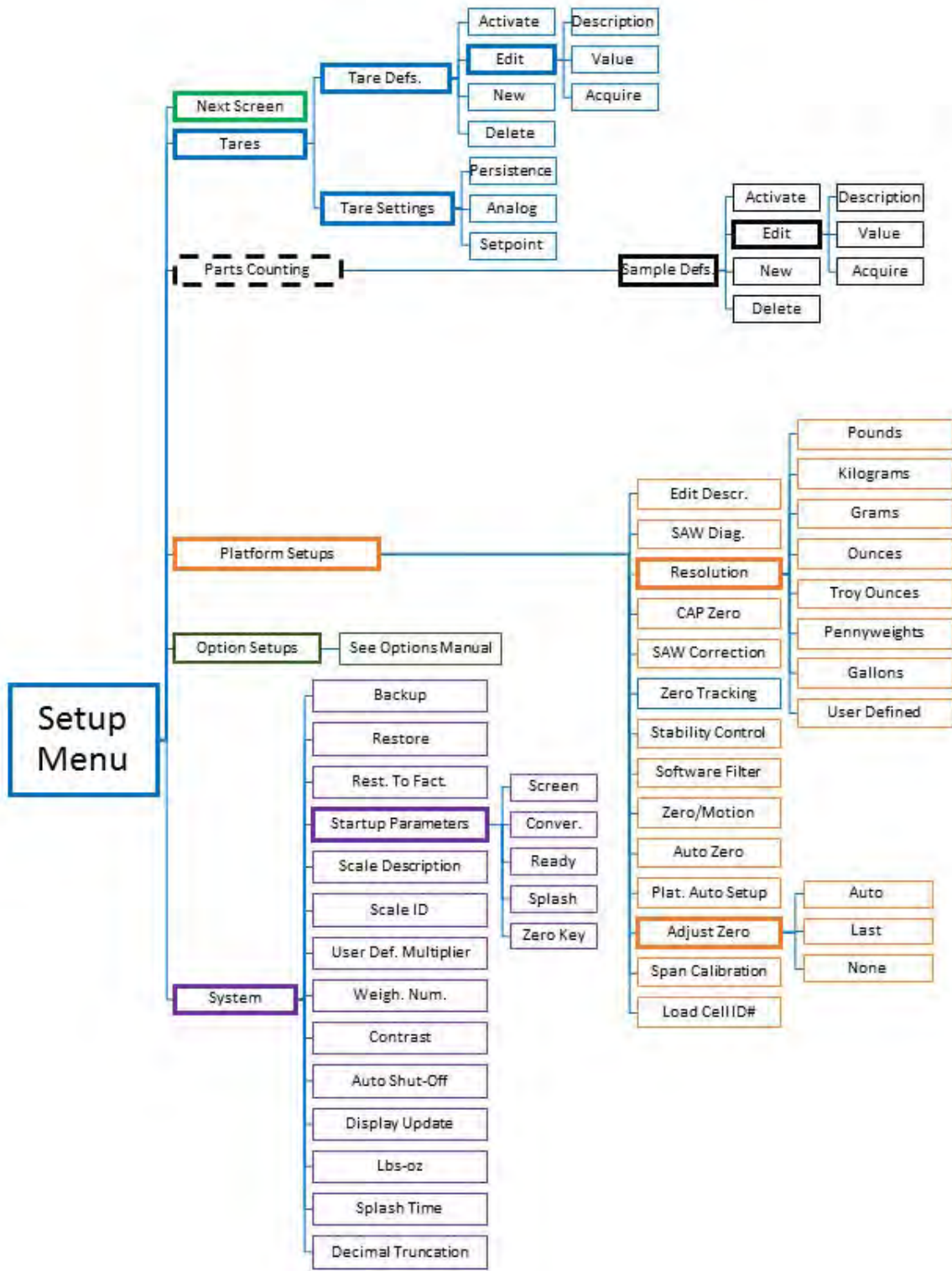
**Scale Reading is Different on Different Areas of the Platform?**

1. On platform scales, check that all four level legs are solid against the floor. If a level leg is screwed in all the way then the stud from the level leg may be contacting the underside of the platform not allowing the load sensor to flex.
2. Check for any mechanical interference. Is there anything rubbing against the platform?
3. Perform "Restore to Factory Defaults" to fix the issue.

**Scale Corners Properly But Does Not Indicate The Correct Weight**

1. On platform scales check that all four level legs are solid against the floor.
2. Check for any mechanical interference. Is there anything rubbing against the platform?
3. Perform a Full Power cycle (disconnect the scale from the outlet) and then perform a SAW Correction.
4. Perform Full Calibration.
5. Perform "Restore to Factory Defaults" to fix the issue.

Menu Tree



## Specifications

<b>Power Requirements</b>	117VAC +/- 10% 50/60 Hz.
<b>Resolution</b>	1:100,000
<b>Repeatability</b>	1:100,000
<b>Typical Linearity</b>	1:30,000 (Model Dependent)
<b>Span Temperature Sensitivity</b>	5ppm/°C (5°C-40°C)
<b>Creep</b>	20min (1:10,000)
<b>Leveling</b>	Adjustable
<b>Tare Range/Zero Range</b>	100% Full scale
<b>Electronics</b>	All circuitry incorporated on one plug in board
<b>Display</b>	LCD graphics display
<b>Display Speed</b>	Adjustable from 0.1-6.0 seconds
<b>Overload Condition</b>	Displayed warning at 102% of scale capacity. 150% by mechanical stops
<b>Operating Temperature</b>	14°F to 104°F
<b>Construction</b>	Die-cast Aluminum Frame, stainless steel weighing pan and click-type switches
<b>Controls</b>	Units conversion, Net/Gross, Tare, Zero with secondary functions
<b>Overall Dimensions</b>	Model Dependent
<b>Shipping Weight</b>	Model Dependent
<b>Options Available</b>	Battery, Setpoints, USB, RS232, Time and Date, Analog Output, Ethernet, WiFi, USB Flash Data Logger

## Limited Warranty

Arlyn Scales warrants that your Arlyn Scales equipment and systems, when properly installed will operate per written specifications. All systems and components are warranted against defects in materials and workmanship for a period of one year.

Arlyn Scales warrants that the equipment sold hereunder will conform to the written specifications authorized by Arlyn Scales. Arlyn Scales warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, Arlyn Scales will, at their option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, Arlyn Scales will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to Arlyn Scales for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment.
- Examination of such equipment by Arlyn Scales confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; Arlyn Scales will be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered or changed by any person other than Arlyn Scales.
- Arlyn Scales will have reasonable time to repair or replace the defective equipment. The buyer is responsible for shipping both ways.
- In no event will Arlyn Scales be responsible for travel time, or on-location repairs, including assembly or disassembly of equipment, nor will Arlyn Scales be liable for the cost of any repairs made by others.

THESE WARRANTIES EXCLUDE ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ARLYN SCALES WILL NOT, IN ANY EVENT, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

ARLYN SCALES AND BUYER AGREE THAT ARLYN SCALES SOLE AND EXCLUSIVE LIABILITY HEREUNDER IS LIMITED TO REPAIR OR REPLACEMENT OF SUCH GOODS. IN ACCEPTING THIS WARRANTY, THE BUYER WAIVES ANY AND ALL OTHER CLAIMS TO WARRANTY.

SHOULD THE SELLER BE OTHER THAN ARLYN SCALES, THE BUYER AGREES TO LOOK ONLY TO THE SELLER FOR WARRANTY CLAIMS.

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