Ultra-Precision Scales

Surface Acoustic Wave (SAW) Series

All Models

SAW SCALE
Instruction Manual

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Contents

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.

Please enter the Serial Number, which is located on the scale serial plate. Retain this information for future reference.
No. .

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
- Abuse Resistant Stainless Steel Load Cell (most models)
- Computerized Self Testing
- Automatic Zero Tracking
- Full Text and 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 included 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.

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) It is strongly recommended to perform a Calibration procedure as described below before first official use.
9) 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.

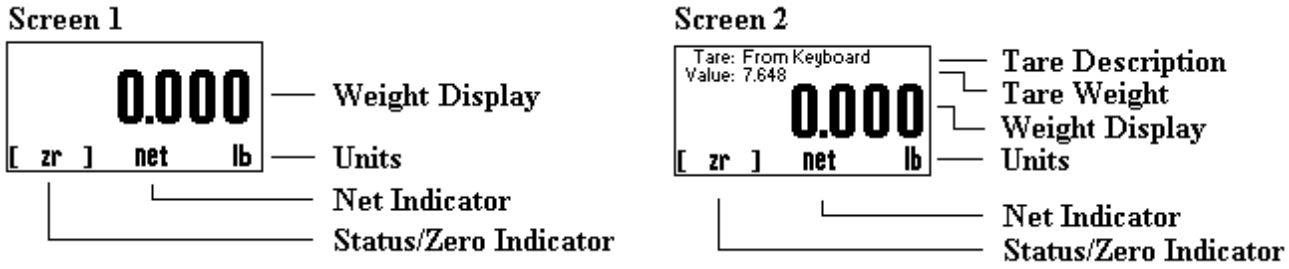
Startup Caution

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. You will know when the scale is done initializing when the word “Done…” appears at the top of the screen very briefly.

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. For non-counting scales screens 3 and 4 are skipped.

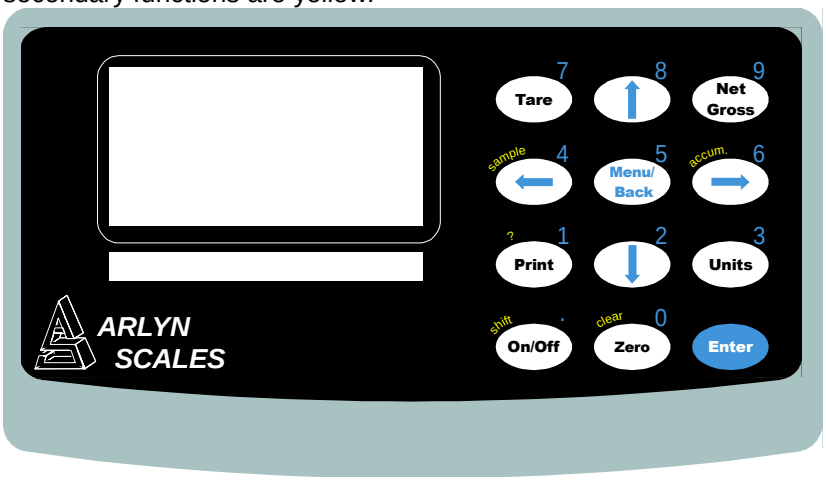


WEIGHT DISPLAY	Shows the weight on the platform in the current units setting.
UNITS	Shows the active conversion units.
STATUS IND.	Shows if the weight on the display is a “Stable Weight”.
NET INDICATOR	Shows “Net” if the indicator is in net weighing mode.
STATUS/ZERO	Shows either “Zr” if the platform is at zero, a bar graph showing how close the scale is to maximum capacity or “OVLD!” 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.



Main Function 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 Navigation Keys

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.

Secondary Function Keys

SAMPLE	In counting scales is used to acquire a quick parts counting sample from the platform. Pressing and holding this key down will clear the active sample.
ACCUM	In counting scales is used to add the piece count to the accumulate register allowing the totaling of parts. Pressing and holding this key will clear the accumulate register.
? KEY	Can be used in various areas to call up help screens. In some areas this key needs to be pressed and held.
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 **Zero Calibration** ***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

- 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.
- 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.
- Perform **Zero 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 recommended to power cycle the scale once an error is encountered. This allows calibration to take place in a fresh state.
- Once Zero Calibration is complete, put a test weight on the scale to check for accuracy.
- The scale is ready to be used. If accuracy is an issue, proceed to the next step.
- 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.
- 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.

"Zero" (Reset) Calibration

Follow this procedure if the software version on your scale is 6.119a1 or older. Use the optional Quick "Zero" Calibration method for version 6.123a or newer.

It is highly recommended to perform zero calibration 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 zero calibration:

- Plug-in the scale, wait at least 10 min to let the scale warm-up.
- If the weight screen is not showing, press ON/OFF button on the indicator --- the weight screen will appear.
- Press MENU/BACK button (#5) ---- setup menu screen will appear
- Highlight "Option Setups" line (use the arrow buttons on the panel) and press ENTER button --- the Option Setups screen will appear.
- Highlight "Saw Scale Setup" line and press ENTER button ----the Saw Scale Setup screen will appear.
- Highlight "* **Saw Calibration *"** line and press ENTER button--- the "calibration change" warning screen will appear.
- Press ENTER button--- the * span calibration * screen will appear.
- When the prompt appears to input the calibration weight, just press the ZERO button once and then press the ENTER button--- next screen will appear.
- Make sure there are no weights on the platform, then press the ENTER button again on this screen ----the "please wait" screen will appear, and after some time next prompt will appear.
- **Do not place any weight on the platform.** Simply press ENTER button and wait until the "Saw Scale setup" screen appears again.
- Press MENU button several times until reading screen will appear.
- **Scale is ready to operate.**
- 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 "Zero" Calibration

Use this optional method for versions 6.123a or newer only.

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

- Press SHIFT (ON/OFF key) + ZERO. A prompt will appear asking you to remove all weights on the platform.
- Make sure there are no weights on the platform, then press the ENTER button again on this screen ----the "please wait" 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 ZERO CALIBRATION first before performing Full Calibration. This is especially important if you have not performed Zero Calibration in more than 2 weeks of operation. The following sequence walks you through Full Calibration.

- In the SAW Scale Menu, select SAW calibration by pressing ENTER on the menu option "SAW Calibration".
- *(Versions 6.123a and above only*) The first message is a "Calibration Pre-check" asking you if you have performed a ZERO CALIBRATION beforehand. If you have, press ENTER to proceed. If you have not, then press the MENU button and proceed to the Zero Calibration walkthrough in this manual.
- The next warning message warns you about the consequences of performing an incorrect calibration. Read the warning message, and then press ENTER
- 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.
- Press ENTER to confirm input of calibration weight.
- 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.
- Wait for the next prompt to appear.
- 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.
- Wait for a few seconds until the calibration procedure completes.
- 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.

Maintaining Accuracy

- It is recommended that "Zero Calibration" be done on the same day of receipt of the scale. This is because the scale can acclimatize with the customer's environment.
- It is recommended that "Zero Calibration" be done every 3 to 4 days after the receipt of the SAW Scale. "Zero Calibration" is outlined in the next section.
- It is also recommended that "Full Calibration" be performed every year.

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 it’s 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.

Text Descriptions

Many items carry descriptions, which can be changed at any time. These descriptions are useful in the case of Tares and Counting Samples because the descriptions are shown on the display when activated, eliminating confusion. The scale itself also has a description and ID number that can be changed in the SETUP MENU/SYSTEM/SCALE DESCRIPTION menu. Further, there are text definitions that can be created and used in RS232 operations like label printing.
All of these text entries are fourteen characters in length and can be edited through the text-editing screen. When activated, the text is shown on the top of the screen with an arrow pointing at the first character. In the lower part of the screen is the entire character set with the current selection highlighted. The keys used for the editing are shown below.

ARROW KEYS	Use them to select a character in the lower list.
7 and 9 KEYS	Use these to position the arrow on the top line.
ENTER KEY	Changes the character above the arrow to the character selected in the list and then advances the arrow to the next position.
CLEAR KEY	Will clear the entire line and place the arrow in the leftmost position.
MENU KEY	Will complete the operation.
SHIFT KEY	Selects either upper case or lower case characters.
? KEY	Online help.

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.

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.

Udef Conversion Multiplier
Allows you to enter the multiplier (from pounds) for the user-defined conversion**.**

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.

Startup Parameters
The following startup parameters can be set here;
a) The startup screen and conversion units can be set here.
b) The "ready" prompt and the splash screen can be enabled/disabled.
c) 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..

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.

ACT Activates/deactivates the auto shutoff feature.
TIME Is the time, in minutes, that the unit will shutoff due to inactivity. Any time from 1 to 25 minutes can be used.

Configuration and Calibration

SAW Scale Features

To access the functions for SAW Scale:

- Press MENU
- Scroll to Options Setup, press ENTER
- Scroll to SAW Scale Setup, press ENTER

In the SAW Scale Setup menu, there are 5 user available options

- Auto Zero
- Weight Holding
- Remote Terminal
- SAW Calibration*
- Time Interval*
- Filter Control Off

*These menu items are configuration options for the SAW Scale, the rest are output options.

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.

Weight Holding

The Weight Holding feature allows the SAW Scale to stabilize the final weight reading of the object placed on the platform. This gives the user a greater readability of the weight reading shown on screen. For example, if the weight is deflecting between 24.543lb and 24.546lb, the SAW Scale system will hold the weight somewhere between these two readings depending on the filter and averaging algorithm built into the SAW Scale.

Remote Terminal (For Factory Use Only)

The Remote Terminal feature is used to monitor the coefficients and parameters of the SAW scale in real time. It also allows some advanced functions to be performed on the SAW scale that may alter its behavior depending on the environment. This feature is not currently used on the indicator. But it can be turned on or off using the indicator.

WARNING: Once the Remote Terminal feature is turned on, this will disable the indicator from working properly. The SAW Scale will have to be connected to a computer to shut off the Remote Terminal feature, so that it can work with the indicator. The instruction for computer connection is given on page 4.

Filter Control Off

The Filter Control feature is a built-in system that filters and averages the raw weight received from the platform to increase the accuracy of the weight seen by the user on the indicator. However, processing the raw weight and this maybe unsuitable for certain applications that require very fast weight updates. For these applications, the user can turn off the filtering by placing a checkmark in front of the “Filter Control Off” by pressing ENTER.

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. Factry 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 Flsh 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:

- ❑ Select Time interval by pressing ENTER on the menu option "Time Interval".
- ❑ A screen shows up telling you the current time interval for updating weights on screen.
- ❑ Press the RIGHT arrow key to change the time interval settings.
- ❑ Press ENTER to confirm your choice, or press MENU to cancel your choice.
- ❑ 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 8. 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 reads zero and will not move.

- Make sure that any and all shipping screws are removed from the platform.
- On platform scales, check that all four level legs are contacting solidly against the floor.
- 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.
- Check to see if the SAW platform is securely connected to the Digital Indicator.
- Check to see if the RS232 option is enabled in the Options Menu. ***(for v6.119a1 and older only)***
- Make sure the SAW Scale Settings Option can be seen in the Options Menu.
- Perform a Full Power cycle (disconnect the scale from the outlet) and then perform a Zero Calibration
- Perform "Restore to Factory Defaults" to fix the issue.

Scale reading is fluctuating wildly.

- 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.
- Scale must be installed on a clean power line. Electric motors, computers or any other devices can cause power line interference.
- RF interference can cause scale readings to fluctuate. Are there any transmitters nearby like cell phones or walkie-talkies?
- If the scale is a remote platform type, check to see if the cable from the platform to the indicator in plugged in properly. If so then remove the plug temporarily to check for bent or missing pins.
- Check for nicks or cuts on the platform cable.
- Perform a Full Power cycle (disconnect the scale from the outlet) and then perform a Zero Calibration
- Perform "Restore to Factory Defaults" to fix the issue.

Scale reading is different on different areas on the platform?

- 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.
- Check for any mechanical interference. Is there anything rubbing against the platform?
- Perform "Restore to Factory Defaults" to fix the issue.

Scale corners properly but does not indicate the correct weight.

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

Calibration Errors

- During calibration, you may encounter errors if the calibration pre-conditions are not met or if something goes wrong during calibration. The following points describe the error and their meaning.

ERROR	DESCRIPTION	SOLUTION
Err1	Error 1: Not Ready for Calibration. This error occurs when the scale denies the request for calibration. This usually happens when the preconditions are not met as described in this manual (See Calibration Overview).	Make sure the preconditions are met as described in the Calibration Overview. Power Cycle the entire system and retry calibration.

		If error persists, perform "Restore to Factory Defaults".
Err2	Error 2: Calibration Failed. This error occurs if there an anomaly was detected during calibration, such as unexpected raw count values, or a prolonged spike in values. This could also result from preconditions not being met as described in this manual (See Calibration Overview)	Make sure the scale is on level and stable surface. Make sure the scale is powered up by a clean power source (not connected to heavy machinery) Make sure the preconditions are met as described in the Calibration Overview. If error occurs during Full Calibration, increase the value of the test weight used. If error persists, perform "Restore to Factory Defaults"

Computer Connection (For Troubleshooting Only)

Please note that if your scale came with the USB option, DO NOT use these steps to connect to your computer for Remote Indicator purposes. Refer to the Instruction manual and the USB manual for steps on that feature.

To connect the SAW Scale to a computer for troubleshooting purposes:

- ❑ Power down the SAW scale indicator.
- ❑ Disconnect the SAW scale platform connector from slot A and connect it to slot B.
- ❑ Connect the RS-232 port to your computer.
- ❑ Power up the SAW scale indicator.
- ❑ Run Arlyn61.exe
- ❑ If the weight shown on the computer screen is deflecting, it means you have successfully connected the scale to the computer.

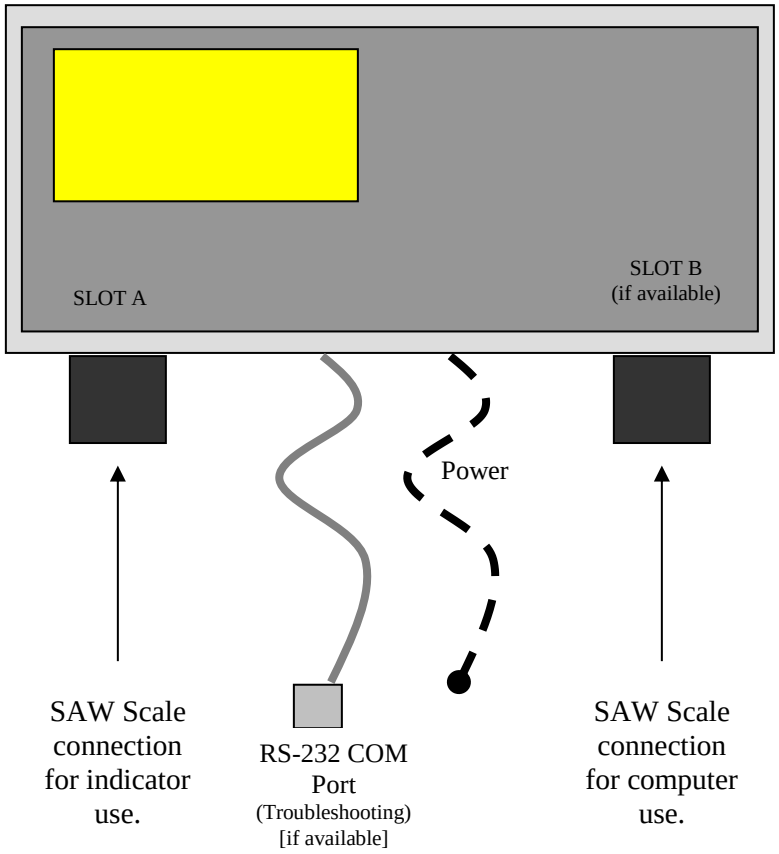
The computer program can be used to perform all of the functionality described in this addendum. Furthermore, the program can also be used to modify SAW Scale coefficients, something that cannot be done using the indicator.

Press the “Terminal” button to update the data on the right hand side of the screen. Make sure to TURN OFF TERMINAL when connecting the SAW Scale back to the indicator.

To connect the SAW Scale back to the indicator:

- ❑ Power down the SAW Scale indicator.
- ❑ Disconnect the SAW scale platform connector from slot B and connect it to slot A.
- ❑ If you wish, you may disconnect the RS-232 port on the computer, but it is not necessary for the functionality of the scale.
- ❑ Power up the SAW Scale Indicator.
- ❑ Press ON/OFF key to turn on the scale indicator.

SAW Scale Indicator Diagram (For Troubleshooting only)



Specifications

Series SAW		
Model	***Capacity & Resolution***	***Platform Size***
SAW-X	10 lb x 0.0001 lb / 4600 g x .05 g	9" x 12"
SAW-T	25 lb x .0002 lb /12 kg x 0.1 g	12" x 16"
SAW-L	50 lb x .0005 lb / 22 kg x 0.2 g	12" x 16"
SAW-C	100 lb x .001 lb / 45 kg x 0.5 g	12" x 16"
SAW-H	200 lb x .002 lb / 90 kg x 1 g	12" x 16"
SAW-HL	200 lb x .002 lb / 90 kg x 1 g	20" x 23"
SAW-JL	300 lb x .002 lb / 135 kg x 1 g	20" x 23"
SAW-KL	500 lb x .005 lb / 225 kg x 2 g	20" x 23"
SAW-KXL	500 lb x .005 lb / 225 kg x 2 g	31.5” x 31.5”
SAW-MXL	1000 lb x .01 lb / 450 kg x 5 g	31.5” x 31.5”

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

Series SAW					
Model	***SAW-X***	***SAW-T***	***SAW-L***	***SAW-C***	***SAW-H***
Capacity x Readability	10 lb x .0001 lb 5 kg x .05 g	25 lb x .0002 lb 12 kg x 0.1 g	50 lb x .0005 lb 25 kg x 0.2 g	100 lb x .001 lb 50 kg x 0.5 g	200 lb x .002 lb 100 kg x 1g
Readability	25 mg	50 mg	100 mg	250 mg	1 g
Linearity*	1:60,000 of full capacity	1:60,000 of full capacity	1:40,000 of full capacity	1:40,000 of full capacity	1:40,000 of full capacity
Response Time (avg)	1 sec	1 sec	1 sec	1 sec	1 sec
Display Update	0.4 sec.	0.4 sec.	0.4 sec.	0.4 sec.	0.4 sec.
Allowable Ambient Temperature	10F…120F	10F…120F	10F…120F	10F…120F	10F…120F
Sensitivity Drift (15C-35C)*	approx.+/- 2 ppm	approx.+/- 2 ppm	approx.+/- 2 ppm	approx.+/- 2 ppm	approx.+/- 2 ppm
Overall Accuracy	1:20000	1:20000	1:20000	1:20000	1:20000
Safe Overload	500%	500%	500%	500%	500%
Power Consumption	0.3 VA	0.3 VA	0.3 VA	0.3 VA	0.3 VA
Pan Size	8" x 10"	12" x 16"	12" x 16"	12" x 16"	12" x 16"

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.
NO TERMS, CONDITIONS OR UNDERSTANDING, OR AGREEMENTS PURPORTING TO MODIFY THE TERMS OF THIS WARRANTY SHALL HAVE ANY LEGAL EFFECT UNLESS MADE IN WRITING AND SIGNED BY A CORPORATE OFFICER OF ARLYN SCALES AND THE BUYER.