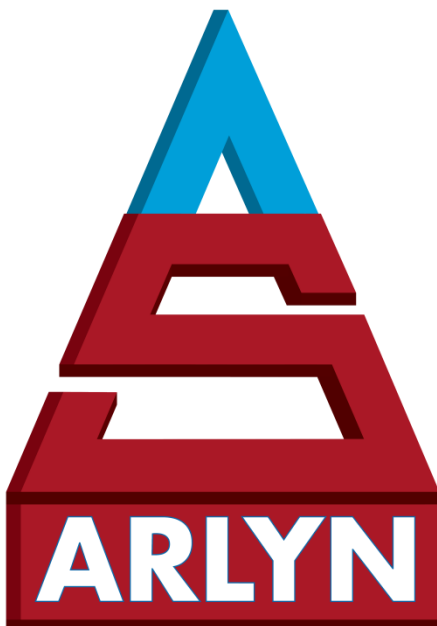# Digital Scales

3200, 3250, 6200 & 5-XXXX Series

Equipped with MKE-5 Display Indicator

User Manual

ARLYN SCALES

INDUSTRIAL, VETERINARY & CUSTOM SCALES

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v12.1.051325

CONTENTS

1 YOUR NEW SCALE

Congratulations on your purchase of an Arlyn Digital Scale. 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.

Serial No. _____.

1.1 Scale Version

This manual only applies to scale firmware version R12.xxx. If your scale has version is R6.1xxx, this manual will not work for you. You can find support for Legacy products at http://www.arlynscales.com/legacy-scale-support. You can also call customer service listed at the title page for further assistance.

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. The firmware version can also be checked by pressing the MENU button → SETUP MENU → SYSTEM SETUP → VIEW VERSION NUMBER.

1.2 Additional Manuals

If your scale is equipped with Parts Counting, Flow Rate, USB Communication, etc. please refer to http://www.arlynscales.com/product-manuals-specification-sheets to download instructions relevant to your specific scale. The digital version of this manual can be found here as well.

1.3 Features

❑ Easy to read, LCD Graphics display	❑ Automatic Zero Tracking
❑ Automatic Calibration	❑ Full Text and Floating-Point Entry
❑ Multiple Tare Weights	❑ On Line Help
❑ No Moving Parts	❑ Optional Time and Date
❑ Positive Overload Stops (most models)	❑ Optional Battery Operation
❑ Large Memory Capacity	❑ Optional Weight Average Function
❑ Eight Unit Conversions Standard	❑ Optional Configurable RS-232 Port
❑ High Accuracy Parts Counting on Many Models	❑ Optional Setpoints
❑ Automatic or Numeric Entry Tare	❑ Optional Analog Output
❑ Sealed "Click-Type" Control Panel	❑ Optional Multiple Platforms
❑ Stainless Steel Load Cell (most models)	❑ Optional USB Interface
❑ Computerized Self Testing	❑ Optional USB Flash Drive Datalogging

1.4 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).

1.5 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.

1.6 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. If the level legs are already screwed into the platform, they MUST be unscrewed and extended out so they can hold the platform above ground
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 of other inaccuracies.
5. Plug into 117 VAC wall outlet. *(If your model comes with the optional 24V DC input, please insert the appropriate power supply).* For non-battery pack equipped scales, wait for the weight screen to show up. For battery pack equipped scales, the screen will remain blank until you press the ON/OFF key. To shut the scale down, press and hold the ON/OFF key until the display blanks out.
6. Allow a five-minute warm-up time for stabilization and most accurate results. 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 pressing the ZERO button prior to weighing.

1.7 Platform Leveling Legs

Platforms will come with levelling legs that lifts the platform from the ground and provide the clearance for the internal load cell sensors to bend. At shipping, these leveling legs are screwed into the platform tightly (with no clearance) to protect the platform and the legs during shipping.

These legs MUST be unscrewed out to a certain point (NOT all the way that they fall off). The legs should be used to level the platform on the ground. Otherwise, the scale will not function properly.

NOTE: Some scales will not come with legs but rather "bumpers" at the bottom of the platform. One example is the Cylinder Scale 620G models. In these cases, no leveling is required.

1.8 Multiple Indicators and Platforms

Indicators and Platforms must not be mixed and matched. Each indicator is calibrated towards a particular platform. If you purchased and received multiple scales, then each indicator must be matched with its own platform. To do this, match the serial number on the back of the indicator to the serial number on the platform. The platform's serial number is usually located on the side of its frame or under it.

2 CONTROLS AND INDICATORS

2.1 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. By doing this, you will step through the screens shown below in order. For non-counting scales screens 3 and 4 are skipped.
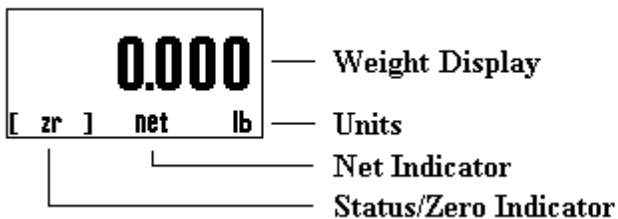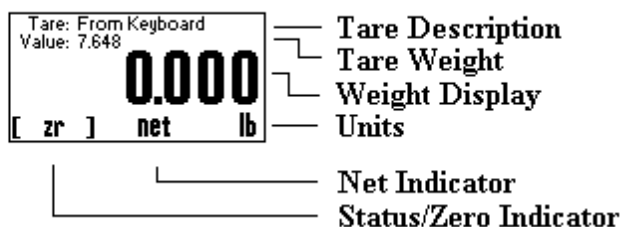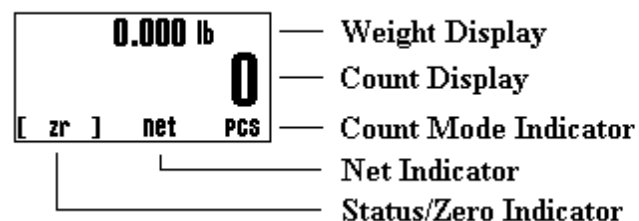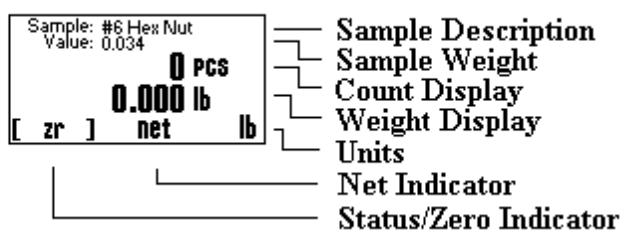
WEIGHT DISPLAY	Shows the weight on the platform in the current units setting.
COUNT DISPLAY	Shows the current piece count on the platform. If there are any totals in the accumulate register it will indicate "pcs acc"
UNITS	Shows the active conversion units.
NET INDICATOR	Shows "Net" if the indicator 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.
SAMPLE DESCR	Shows the description of the active sample weight. If the sample was taken from the keyboard using the SAMPLE key it will show "From Keyboard".
SAMPLE WEIGHT	Shows the weight value of the active sample.

2.2 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.
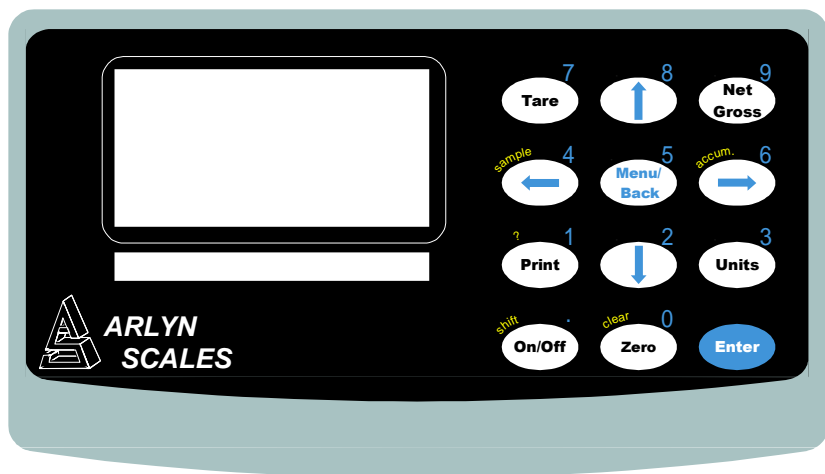
2.2.1 Main Function Keys

ON/OFF	Press and hold to reboot the scale. On battery pack equipped scales, press and hold this key to power it down.
TARE	Tares any weight on the platform and switch the scale to the net mode. Hold the key down to clear the tare
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 activated Units.
ZERO	Will zero the indicator.

2.2.2 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	Use arrows to navigate and select menu items.

2.2.3 Secondary Function Keys

SAMPLE*	Used to acquire a quick parts-counting sample from the platform. Pressing and holding this key down will clear the active sample. *Parts Counting Scales only.
ACCUM*	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. *Parts Counting Scales only.
? KEY	Used in various areas to call up help screens. In some areas this key needs to be pressed and held.
SHIFT	Used by the text-editing screen to toggle caps on/off.
CLEAR	Used in some editing screens to clear your input. In some areas this key needs to be pressed and held
NUMBER KEYS	Are used in various places to input floating point numbers.

*Parts Counting Scales only

3 SYSTEM OPERATION

3.1 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.

3.2 Tares

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.

The TARE key can also allow you to quickly specify a weight that you want to tare out without going through the Tare Definitions process. To set this function, please look at the Tare Button Function below.

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   Create a record of predefined tares that can for pre-existing weights of containers.

Tare Settings   Control the behavior of a tare.

Tare Button Function   Control the behavior of the TARE Key on the Display.

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.

3.2.1 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 0.00lb when first created.

3.2.1.1 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").

3.2.1.2 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.

3.2.1.3 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.

3.2.1.4 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.

3.2.2 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.

3.2.2.1 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.

3.2.2.2 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 gross weight even if the screen shows zero, and therefore continues to produce the analog equivalent of the gross 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 net 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.

3.2.2.3 Setpoint Enabled (For Setpoint equipped scales only)

By default, if the user tares a weight from the platform (and the screen shows zero weight), the setpoint will continue to evaluate the gross weight even if the screen shows zero, and therefore continues to control the outputs based on the gross weight. Selecting this option to "Yes" will allow the activated tares to affect the setpoint evaluation. For example, if the user tares a weight from the platform, and the screen shows zero weight, then this time, the setpoint will evaluate the command lines associated with the 0-net weight. In effect, enabling this option will allow the setpoint to reflect exactly what is on screen regardless of the weight on the platform.

3.2.3 Tare Button Function

The TARE key on the Front Panel of the Display Indicator can be used in two ways:

a) Tare any weight on the platform to bring the platform to NET ZERO.
b) **Quick Tare:** Quickly specify a tare weight that you want the scale to subtract from the current gross weight.

For situation (b) this is especially useful if you want to weigh pre-packaged items and you want to know weight of the content minus the weight of the package. In this case, when you press the TARE button, a screen will show you to enter the weight of the package you want to tare out. Once the tare is confirmed, the scale will display the weight of the content ONLY.

In the "Tare Button" screen, you will see the following:

```
         TARE BUTTON

   Tare Value Button = DISABLED

        ENTER to Change
         MENU to exit
```
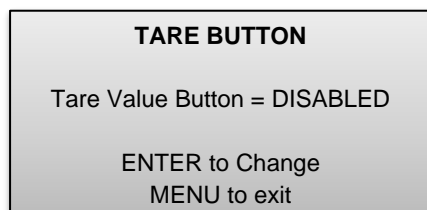
Press ENTER key to enable or disable the Quick Tare function.

3.3 Parts Counting Functions (Series 8200)

A separate manual has been created for Parts Counting. Please visit:

https://www.arlynscales.com/arlyn-mke5-parts-counting/ -> Click on Download for MKE5 – Parts Counting Manual.

3.4 System

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.

3.4.1 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.

3.4.2 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.

3.4.3 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.

3.4.4 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.

3.4.5 Udef Conversion Multiplier

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

3.4.6 *Auto Increment Weight Number (Future expansion)

This number will increment each time the PRINT button is pressed. It can be useful in label printing and statistical operations. Its starting value can be set here.

3.4.7 Display Contrast

This allows you to adjust the contrast of the display for optimum viewing.

3.4.8 Display Refresh Interval (or Display Update Speed)

The Display Refresh Interval can be adjusted from .1 to six seconds.

3.4.9 Startup Parameters

The following startup parameters can be set here.

- ❑ The Startup Screen - Usually screen 1 which is the main weight screen. See the [Main Display Screen](#) to know which other screens are available. Other screens that can be set are:
    a. Screen 2 – The Tare Screen
    b. Screen 3 – The Parts Counting-A Screen.
    c. Screen 4 – The Parts Counting-B Screen.
    d. Screen 5 – The Multiple Platform Screen.
- ❑ The default Unit Conversion – Set the first unit to be displayed.
- ❑ 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.

3.4.10 Erase User Memory

The entire user memory can be erased at one time, if necessary, using this option. It will erase all user-defined tares, counting samples, text definitions, print frames and setpoints but will leave platforms and other system memory intact.

3.4.11 Revision Number

This option reads out the current operating system revision number.

3.4.12 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.

3.4.13 Lbs-Oz Display

Enable the display to show the weight in "lbs and oz" instead of units in fractional form. For example, by default, the screen will 2 ½ lbs of weight as 2.50 lbs. In "lbs/oz" form, it will show as "2lbs 8oz". Please note that this does not affect the communication output form.

4 CONFIGURATION AND CALIBRATION

4.1 Platform Advanced Setup

The scale's operating system revolves around one or more platform definitions that are stored in memory, with most scales only having one weighing platform. Each platform is fully configurable as to it capacity, displayed resolution, filtering, calibration and many other parameters which will be outlined in detail below.

To access the Platform Setups, press the MENU/BACK key to activate the setup menu. Select PLATFORM SETUPS from the menu and then press ENTER. If your scale has multi-platform capability then a list of platforms will be shown. If your scale is a single platform type, then you will be shown only the Platform Setup Menu.

4.1.1 Description

A fourteen-character description can be assigned to the platform. The default description is "Plat#001".

4.1.2 Platform Auto Setup

This setting should not be touched 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.

4.1.3 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 below in the "Span Calibration" section.

4.1.4 Resolution-Overload

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

Each platform 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 5000. For example, a 50-pound scale's resolution should be .01 pounds (50 / 5000 = .01).

4.1.5 Auto Zero

Auto Zero determines how the platform will zero on power up. The following selections apply.

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.

4.1.6 Zero Tracking

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 ±0.2lbs.

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.

4.1.7 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.

4.1.8 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:

❑ *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.
❑ *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.

4.1.9 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.

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. As long as the weight remains within specified motion window within this time, the scale would confirm that there is no motion detected. If the weight jumps out of the motion window, then the scale would register as "Motion Detected" and reset the time interval.

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 'O' indicator appears at the bottom of the screen. If the platform is moving, the 'O' 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.

4.1.10 Multi-Platform Settings (for Multiple Platform Configurations Only)

This screen allows you to configure the scale to calculate the "Sum" or the "Difference" between the weights of two connected platforms.

You can also configure the scale to automatically scroll through all platforms at specific intervals. This means that after a certain periodic interval, the scale will show the individual weight on each platform alternatively.

The following settings apply:

Platform Total – TOTAL: Toggle this option to select either "Sum" or "Diff" function between the weights of both platforms. For "Diff", the equation is: PLATFORM 1 – PLATFORM 2 = DIFFERENCE.

Auto Scroll – SCROL: Use this option to toggle the Auto Scroll Enable option.

Auto Scroll Time (sec.) – TIME: Set the time period between each platform display interval.

4.1.11 Adjust Zero Offset

Use this function to reset the Calibration Zero Constant. This is similar to the first part of the Span Calibration procedure except you do not need a known weight for calibration. However, it is required that the platform remain empty during this process.

4.1.12 View Raw ADC Data

This function is used for troubleshooting purposes. If the calibration is done improperly or if the scale is installed incorrectly, then the weight value seen on the screen maybe off or not reading at all (showing 0). To make it easier to self-troubleshoot this issue, this screen allows to first check if the scale analog conversion hardware is still in working order.

The screen shows the raw, unprocessed digital counts coming from the analog to digital converter (ADC). The ADC is directly connected to the load cells. The behavior of the platform directly affects these numbers. Here is an overview what the numbers mean:

a) 83884xx – The last two digits should be constantly moving. This means the ADC is working properly but the platform is not connected to the indicator. Please check the platform cable and try again.

b) 8xxxxxx – If these numbers don't equal to the number in part (a), and the last two digits are constantly moving, then it means the platform is connected properly.

  o Press the Platform with your hand.
    ▪ If the numbers are increasing then the legs are screwed in at the right level.
    ▪ If the numbers are decreasing, then the legs are screwed in all the way. Unscrew the legs out a little so that the platform is "floating" above the ground. If you have installed the load cells on your own, then this means one or more of the load cells have been installed upside down.

o   If all the items above check out, then just perform a [Span Calibration](#) of the scale to get back to working condition.
c)   0000000 – The ADC is damaged. Please call Customer Service for further assistance.
16777215 – Something is wrong with the ADC configuration. Perform a [Restore to Factory Defaults](#) to attempt to fix this issue. If it doesn't work, call Customer Service for further assistance.

5 CALIBRATION AND 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.

Try to troubleshoot the scale using the "[View Raw ADC Data](#)" feature in conjunction with the below checks.

5.1 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.

5.2 Scale reading is fluctuating wildly.

❑   Scale must be on a non-vibrating surface. Breezes may affect scales of lighter capacities.
❑   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.

5.3 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?

5.4 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 span calibration.

5.5 Span Calibration

Span calibration is used to set the internal gain of the indicator so that it reads correctly. A calibrated weight is needed in order to perform a span calibration. Any weight may be used within the capacity range of the scale but a weight of 50% of capacity is recommended. Using weights of less than 10% of capacity is not recommended and may lead to an inaccurate calibration. 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, place the known weight on the platform.
10. Wait for the raw count on the top left side of the screen to stabilize (about 5 seconds). Press ENTER to confirm the placing of weight.
11. Wait for a few seconds until the calibration procedure completes.
12. Press MENU/BACK to go all the way back to the weight screen.

5.6 Platform Connector Pinout
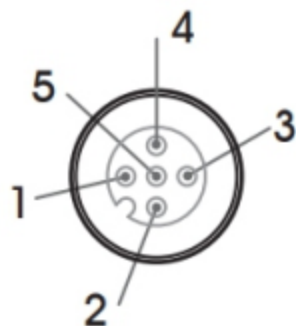
PLATFORM CONNECTOR CABLE

PIN#	COLOR	DESCRIPTION
1	BROWN	NO CONNECTION
2	WHITE	- SIGNAL
3	BLUE	+ EXCITATION (3.3 VDC)
4	BLACK	- EXCITATION
5	GRAY	+ SIGNAL

*Please note that the pin numbers shown here are for convenience. The actual pin number on the connector as designated by its manufacturer is different and may vary.

6 PRIMARY MENU TREE
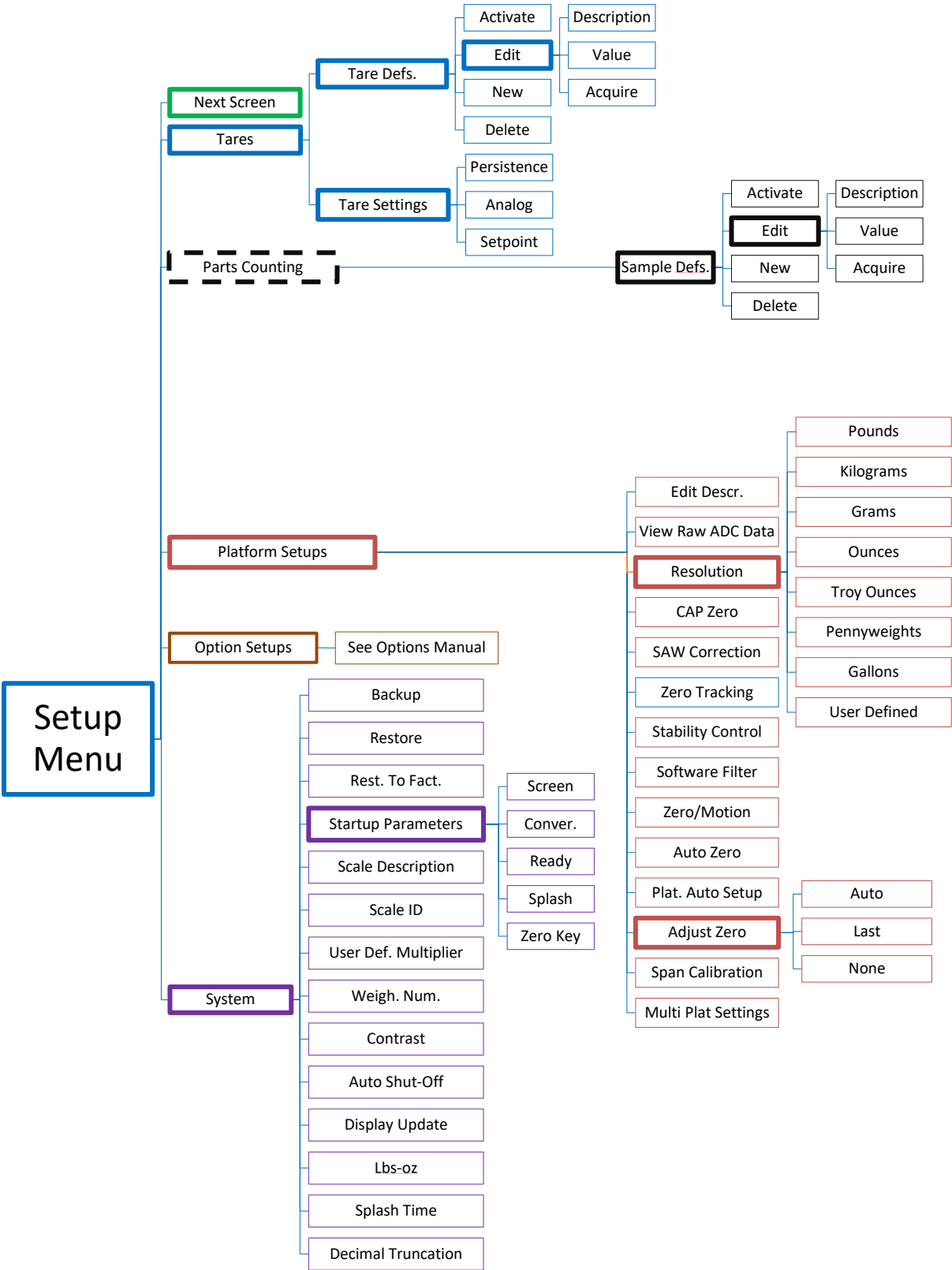
Options Guide

7 INTRODUCTION TO OPTIONS

This section will cover the operation and setup of all of the options available for your scale. It is important to note that some described menu items will be missing if that option was not installed in your specific scale. All of the options listed may be installed in any scale and may run concurrently. Any of the options may be installed later at the factory if it wasn't installed at time of purchase. Call our service department for details.

8 RS232 COMMUNICATIONS PORT

The RS232 option is a fully capable, bi-directional communications port. The port can be configured to operate at a variety of baud rates and the output data frames are definable by the user. The printing of a frame can be initiated by pressing the print button, by an external command, upon reaching a setpoint (not currently supported), or continuously when the print stream mode is activated.

The communications port also contains an extensive external command interface allowing the ability to perform remote key presses.

8.1 RS232 D-SUB 9-Pin Connector

DB-9 Female

RS-232 SIGNAL	PIN
TXD	2
RXD	3
GND	5
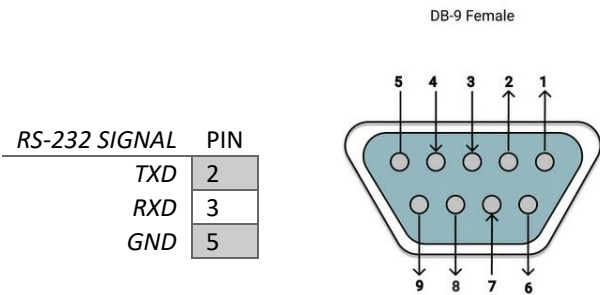
8.2 Configuring the Port

Baud rate and other parameters can be configured through the Port Configuration screen that can be accessed under menu SETUP MENU → OPTION SETUPS → RS232 → PORT CONFIG. The options are shown below.

BAUD RATE	Settable to 110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 31250 or 38400 bits per second.
DATA BITS	Seven or Eight
STOP BITS	One or Two
PARITY	Even, odd or none
ECHO	On or off. When echo is enabled the scale will echo each character the scale receives back to the user.

8.3 Perform Test Print

As an aid to port configuration we have included a "perform test print" function to the RS232 menu. Executing this will cause your current Print Frame to print. To access this function, go to the menu SETUP MENU → OPTION SETUPS → RS232 → PERFORM TEST PRINT.

This selection is also available as part of the USB Communications option.

8.4 Loop Back Test

You may also test the operation of the RS232 port by performing a loop back test. On the output connector, TX and RX (transmitted and received data) need to be shorted together. When you perform the test, the scale sends data and reads it back through its own port, where it is compared and the results are show.

8.5 Print Stream Mode

Print stream mode will continuously print the currently active print frame at fixed time intervals. Stream mode can be configured using menu SETUP MENU/OPTION SETUPS/RS232/PRINT STREAM. The lower menu selection ENB will enable or disable print stream mode, and TIME will be the number of seconds between the beginning of each print frame. Time settings of .5 to 1638 seconds (27.3 minutes) can be entered. Avoid using time values of less than .5 seconds as it may slow down or lock up the scale.

When stream mode is enabled, use the print button or the external *P command to start or stop the printing process.

This selection is also available with USB Communications Option.

8.6 Printing at Stability Using Motion Detection and Stability Control

All Arlyn digital indicators have the capability of detecting motion and/or stabilizing the weight and using it to control printed outputs. This can be useful in many applications. For example, if you wanted to print labels for several items, you could simply place each item on the platform, and when the scale gets a stable reading it will print the label automatically. The Motion Detect, Stability and printing at stability are fully configurable through their respective setup screens.

The Motion Detect indicator looks like an 'M' and it is located just to the right of the Zero Indicator / Bar Graph located on the bottom of the display. It is crossed out if there is no motion, and it is uncrossed if there is motion.

The Stability Control indicator looks like a circle and it is also located just to the right of the Zero indicator/Bar Graph located on the bottom of the display. The circle is unfilled when the weight is not stable and filled when the weight is stable.

Print at Stability configuration allows the user to choose what control they want to use to print. The user can choose Motion Detect only, Stability control only, or both Motion Detect and Stability control. Take a look at the Instructions Manual to see how the Motion Detect and Stability Control can be set.

Sending a PRINT command or pressing the PRINT button on the front panel will send a PRINT request to the scale, and the scale will only print if the motion and stability conditions are met.

This selection is also available with USB Communications Option.

8.6.1 The Print-At-Stability Setup Screen

Follow the menu tree down this path to locate this setup screen: SETUP MENU / OPTION SETUPS / RS232 / PRINT AT STABILITY.

There are five settings that control this function:

Activate – ACTV: This will activate or deactivate this function. Select ACTV from the horizontal menu on the bottom of the screen, and then press ENTER to change this setting.

Percentage of Capacity – PCT: This is the percent of full scale capacity, which, if the scale reading falls below, will not automatically print. For example, a 100lb full capacity scale set to 1% will not automatically print when there is less than 1lb on the platform. In most applications, there is no purpose to generating a print after removing weight from the platform. This percent can be set to two decimal places.

Stability Timeout – TIMEOUT: This is the time set by the user to timeout retrieval of the value after a certain period of time. By default, this value is 0, which means that the scale is never going to timeout to print a weight values. It will continue to look for a stable point to retrieve a weight value for printing. If the number is set other than 0, then this is the period that the scale will try to print a weight value, and if it fails, it will print "TIMEOUT" in ASCII on the terminal.

Negativity – NEG: By setting this to "YES", the automated print will work on both sides of zero. When set to "NO" it will only work with positive weights. The user must take into consideration here that if this parameter is set to "NO", then when the scale is reading zero, the output may be erratic even though the scale is stable. This is because the value 0 in the scale is not a true stable zero. The zero here may be a long decimal that goes beyond the resolution. In this case, the value maybe negative and therefore, impeding the printing process. It is recommended to set this to "YES" if the zero value is important.

Zero Notify – ZERO NTFY: If this option is set to "YES", then each time the scale is zeroed or a zero command is sent through one of the communication ports, the indicator will wait for the scale to stabilize and detect if there is no motion. Once these conditions are detected, the word "ZERO" appears on the output terminal in ASCII.

Control Source – CONTROL: This option can be switched between Motion, Stability, Motion and Stability based on your preferences. This determines how you want the Print at Stability to operate, whether based on Motion Detect, Stability Control or both. It is important that when you choose these options, these features need to be activated within the system to operate properly.

8.6.2 Print Stream Mode with Print-At-Stability

Print Stream and Print at Stability can work together. If you want the scale to print weights constantly, then activate both of these features together and they will work in tandem with each other.

8.7 Print Frame (For RS232/USB/ETHERNET)

The print frame is a list of up to 20 functions for the scale to perform each time a print request is received. The list is executed in the same order as shown is shown. A function can either be an item to be printed or a command for the scale.

With the MKE-5 indicator has the ability to store only one frame. For the capability of defining multiple frames, please look at our Arlyn UpScale Touchscreen Display.

This selection is also available with USB Communications Option.

8.7.1 Defining and Editing the Print Frame

Go to the menu SETUP MENU/OPTION SETUPS/RS232/PRINT FRAME.

8.7.1.1 Default Print Frame

By default, the Print Frame has two functions stored; Weight and Unit with Carriage-Return (CR) and Line-Feed (LF) at the end of the Frame. This allows the scale to print out the weight and unit to the RS232 output.

This is what a 25.5lb weight would look like on a 620L scale equipped with RS232 (or USB/Ethernet/RS485) printed on Serial Port Terminal:

<div align="center">

`25.50 lb`

</div>

8.7.1.2 Defining a Custom Print Frame

To re-define the frame, line up on NEW on the lower menu and then press ENTER to add a function. The function NULL will be added to the list. We want to change this to the WEIGHT function. Press the right arrow key to line up on FNC+ on the lower menu. Press ENTER twice to select the WEIGHT function. To add a CR to this function, use the right arrow key to line up on CR on the lower menu and then press ENTER.

You will then see a check mark under the column "C". To turn on the LF, press the right arrow once more to line up on LF and then press ENTER. This completes the definition.

The lower menu items on the frame editing screens are outlined below.

Selection	Description
NEW	Adds a new default function (NULL) to the function list.
INS	Inserts a new function (NULL) before the currently selected function line.
DEL	Deletes the currently selected function line.
FNC+/-	Changes the function of the current line. Available functions and their explanations are outlined below.
SRC	On many of the functions you need to specify the source of the data. For example, the WEIGHT function must know what platform (on multiple platform scales) the reading should come from. SRC will step through all available platforms.
CR	Includes a carriage return at the end of the current function
LF	Includes a line feed at the end of the current function.

SP	Allows you to print space(s) at the end of the current function. When activated a "?" will show up in the function list on the current line and allow you to enter a number. The number of spaces must be between 0 and 15.
TEST	Quickly test the print frame without having to return to the scale's normal operating mode. (Future Expansion)

8.7.2 Print Frame Functions

You can add up to 20 functions to Print Frame. The functions are executed in the order they are defined in the list. You can add a CR (carriage return), LF (line feed) or trailing spaces to most functions. This is useful when designing labels.

8.7.2.1 Function List

Function	Action
NULL	Does nothing, but allows CR, LF and spaces to be printed.
WEIGHT	Prints a six-digit weight value. It will be net or gross depending on mode. Use SRC to select the platform.
NETWGT	Prints a six-digit weight reading corrected for tare. Use SRC to select the platform.
GRSWGT	Prints a six-digit weight value ignoring any active tare weight. Use SRC to select the platform.
NGTEXT	Prints "NET" or "GROSS" depending on mode. This is meant to be used with the weight function. Use SRC to select the platform
PLATTOT	Prints a gross total reading of all active platforms.
COUNT	Prints the current piece count. Use SRC to select the platform.
ACCUM	Prints the value in the parts counting accumulate register. Use SRC to select the platform.
CNTACC	Prints a total of the current piece count plus the part count in the accumulate register. Use SRC to select the platform.
TIME12	Prints the current time in 12-hour format. (when the time and date option is installed)
TIME24	Prints the current time in 24-hour format. (when the time and date option is installed)
DATE	Prints the current date in the format as selected in the Date Format in Time and Date Option Configuration. (when the time and date option is installed).
SCADES	Prints the 14-character scale description as entered in the system menu.
SCAID#	Prints the scale ID number as entered in the system menu.
WEIGH#	Prints the auto-incrementing weigh number who's starting value was entered in the system menu. This number will increment each time a frame is printed.
TEXDEF	Prints a 14-character text string that was entered as a text definition. Use SRC to select the text definition.
UNITXT	Prints a 3-character indication of the currently selected unit conversion. (lb, kg, oz, etc).
TARDES	Prints the 14-character description of the current active tare weight.
SMPDES	Prints the 14-character description of the current active sample weight (parts counting).
ASCII	Will send a single ASCII character to the port. Among other things this is useful to send ESC sequences to the printer to change fonts etc. Use SRC to enter the ASCII code.
CHFONT	Change Font. Works only with EPSON compatible printers. Use SRC to select the font. See explanation below.
CHPNT	Change Point size. Use SRC to toggle through the choices 16,20,24,30,36,40,42,48,52,56,60,64

8.7.3 Print Frame Design Examples

8.7.3.1 Simple Weight Print

The first example is a simple print frame that will print the weight followed by a carriage return and a line feed.

FUNCTN	SOURCE	C	L	SP
Weight	P1			1
UniTxt	P1	✓	✓	0

Serial Terminal

25.50 lb

8.7.3.2 Creating a Five-Line Label

The next example shows a more complex definition. Here we will design a five-line label.

1. Line 1 and line 2 will be blank (used for spacing the label vertically).
2. Line 3 will show the time in 12hr format, followed by 1 space,

3. Line 5 shows the date followed by a carriage return and a line feed.
4. Line 6 will show the scale's text description (as programmed through the system menu) followed by 3 spaces.
5. Line 7 shows the weight followed by a carriage return and a line feed.
6. Line 8 will be blank (again used for spacing the label vertically).
7.

Line	FUNCTN	SOURCE	C	L	SP	Comments
1	Null		✓	✓	0	// Two blank lines. Note the check marks on C and L.
2	Null		✓	✓	0	
3	Time12				1	// Line #3, the time and 1 space
4	Date		✓	✓	0	// Date followed by a CR and LF
5	Null		✓	✓	0	// A blank Line to separate the Date and Weight below.
6	ScaDes				3	// Line #6, The scales description followed by 3 spaces
7	Weight	P1			0	// The weight
8	UniTxt	P1	✓	✓	0	// The unit of the weight followed by a CR and LF
9	Null		✓	✓	0	// One blank line. Note the check marks on CR and LF.

The label would look like:

```
11:31:43 AM 12/03/2016


ScaleDescr   123.456
```

Remember that there are only 20 functions allowed the Print Frame, and we used nearly half of them in this example.

8.8 Text Definitions [Not Supported at this time]

Sometimes it is desirable to include text when printing a label. Each text definition allows you to define a 14-character text string. To access text definitions, go to the menu SETUP MENU/OPTION

SETUPS/RS232/TEXT DEFINITIONS. A list of current text definitions is shown and you can NEW, EDT or DEL them in the usual way. ACTV is not used here.

8.9 Changing Printer Fonts

If you have an EPSON compatible printer, you can use the ChFont print frame function to change to one of four fonts, turn double wide on/off, double height on/off, italics on/of, letter quality/draft, bold on/off and printer reset. Not all point sizes or other functions are available on all font types. Also, not all fonts are available on all printers. Please consult your printer's instruction manual for details. The ChPnt print frame function allows you to scale the font size up and down.

The scale will send the appropriate "Escape Codes" to the printer to perform these functions. ChFont and ChPnt are only meant to be a short-cut to reduce the frame size. You could also perform font/point switching and many other printer functions by using the ASCII function.

The following is a summary of the escape codes sent to the printer by the various sub-functions of ChFont;

ChFont Sub-function	Character	Decimal Representation	Comment
Bold On	ESC E	<27 69>	Bold printing ON
Bold Off	ESC F	<27 70>	Bold printing OFF
Ital On	ESC 4	<27 52>	Italics ON
Ital Off	ESC 5	<27 53>	Italics OFF
Draft	ESC x 1	<27 120 1>	Select draft quality print
Let Qual	ESC x 0	<27 120 0>	Select letter quality print
Roman	ESC k 0	<27 107 0>	Select Roman font

Sans Ser	ESC k 1	<27 107 1>	Select Sans Serif font
Courier	ESC k 2	<27 107 2>	Select Courier font
Prestige	ESC k 3	<27 107 3>	Select Prestige font
Script	ESC k 4	<27 107 4>	Select Script font
Reset	ESC @	<27 64>	Initialize printer
DblW On	ESC W 1	<27 87 1>	Double width printing ON
DblW Off	ESC W 0	<27 87 0>	Double width printing OFF
DblH On	ESC w 1	<27 119 0>	Double height printing ON
DblH Off	ESC w 0 <27 119 0>	<27 119 1>	Double height printing OFF
ChPnt	ESC X 1 n 0	<27 88 1 n 0>	Select height in points. n = # of points

8.10 External Command Interface

The external command interface allows the user to control the scale and manipulate memory data through the RS232 interface. There are three basic command types, these are:

The * Command (Keyboard Emulation) – This allows you to simulate key presses remotely.

The ! Command (Remote Entry) [Not Supported] - Allows you to add, edit and delete memory contents like tares and parts counting samples [Future Expansion]

The @ Command (Interactive Command) [Not Supported] - Allows you to operate the scale interactively whereby you send commands to the scale and the scale responds with text messages guiding you through various operations. [Future Expansion]

It should be noted that the command list described below is the **proposed list of commands**. As our scale continues to develop, commands are added as each firmware revision comes out. The revision in which the command was added is shown just to the right of the command in parenthesis. If (X) is indicated it means that the command has not been implemented yet and is slated for future release. To check the revision number of your scale, watch the Arlyn Logo splash-screen when you first turn on your scale. Firmware upgrades can be purchased and installed in your indicator. . Some commands can be implemented based on customer request. If it is imperative for the customer to have a certain command type, contact our service department for more information and to get quote for the functionality to be implemented.

8.10.1 Print Request Response Time

When the scale receives a print request (*P) there is a small time-delay while the scale computes and formats its output frame. For any frame function that outputs weight or parts count the response time is typically 100 milliseconds (1/10th second). For almost all other frame functions the response is almost immediate.

8.10.2 External Command Limitations

It is important that when sending repeated print requests (*P) to the scale that you wait for the scale to completely transmit its print frame, and then wait a small amount of time before sending the next request. If the scale receives a print request while it is still transmitting, the scale could actually lock up requiring a power off reset. Also, it is advisable to wait a small amount of time after the output frame is complete to give the scale a chance to do its own "housekeeping chores". To immediately send another print request directly after a transmission could bog down the scale's displayed update rate and keyboard response.

8.10.3 Command String Parameters [Not Supported]

All command strings sent to the scale require a carriage return (hereafter called CR) to be sent at the end of the command string. A CR is ASCII code 13.

Keyboard emulation commands (* commands) do not require a CR and the key press will be initiated right after the command is received.

Many of the command strings require parameters. These are described below.

<descr> Any command that changes the contents of a memory slot will require a 14-character description. This description should exactly match the description of the item in question. The description must be 14 characters in length and spaces should be used for any unused characters just as they are used in the scale's setup menus. For example "Tare #001   " and "Plat #001   " are valid descriptions. Descriptions are case sensitive so format your output appropriately.

If the scale cannot find the description in memory, the message "Error 2: Description not found. Aborting." Will be sent followed by a CR. The operation is then aborted.

<value> Some commands require numeric input. All numbers should be 9 characters in length with a decimal point at character five. Valid values, for example, are 0123.4500 and 0001.0000. Use leading zeros as necessary to keep the spacing correct.

If the scale receives a number in an incorrect format it will send the message "Error 3: Illegal numeric format. Aborting." Followed by a CR. The operation is then aborted.

Command Abort Any command can be aborted at any time by sending a caret (^) character which is ASCII code 94. The scale will respond by sending the text "Command aborted" followed by a CR (ASCII code 13).

Illegal Command If any text is received by the scale that isn't in a correct command format, the scale will respond with "Error 1: Illegal command." followed by a CR. The command is then aborted.

8.10.4 The [*] Command: Used for Keyboard Emulation

A number of external commands can be sent to the scale to simulate keyboard presses. These commands are listed below. Each command must be prefixed with a * character and no CR is required.

Command	Keypress
*P or *1	Print Key - (1)
*C or *3	Units Key - (3)
*Z or *0	Zero Key - (0)
*N or *9	Net/Gross Key - (9)
*T or *7	Tare Key - (7)
*U or *8	Up Arrow Key - (8)
*D or *2	Down Arrow Key - (2)
*L or *4	Left Arrow Key - (4)
*R or *6	Right Arrow Key - (6)
*.	Decimal Point - (On/Off)
*O	On/Off Key will reboot the scale. Power down mode in Battery.
*M or *5	Menu/Back Key - (5)
*E	Enter Key - (Enter)

Care must be taken when sending key commands via RS232 as some keys will perform different functions depending on the scale's operating mode.

8.10.5 The [!] Command: Remote Entry Commands [Not Supported]

8.10.5.1 Tares

NEW (X)	!TN <descr> <value> <CR>
EDIT (X)	!TE <descr> <new descr> <value> <CR>
DELETE (X)	!TD <descr> <CR>
ACTIVATE (X)	!TA <descr> <CR>
CLEAR (X)	!TC simply clears the active tare.
ACQUIRE (X)	!TQ <descr> adds new tare and becomes interactive for acq

8.10.5.2 Samples

NEW (X)	!SN <descr> <value> <CR>
EDIT (X)	!SE <descr> <new descr> <value> <CR>
DELETE (X)	!SD <descr> <CR>

ACTIVATE (X)	!SA <descr> <CR>
CLEAR (X)	!SC <CR> simply clears the active sample.
ACQUIRE (X)	!SQ <descr> <sample size> <CR> adds new sample and becomes interactive for acq

8.10.5.3 Print Frames

NEW (5.021)	!FN <descr> <CR>
LINE EDIT (5.021]	!FL<14 chr src descr> <1 chr line n# 0-9> <2 chr function code> <2 chr arg1> <3 chr arg2> <CR y/n> <LF y/n>
	<2chr # spaces> <CR>
DELETE (5.021)	!FD <descr> <CR>
ACTIVATE (X)	!FA <descr> <CR>

8.10.5.4 Text Definitions

| NEW (5.021) | !XN <descr> <CR> |

8.10.6 The [@] Command: Interactive Commands [Not Supported]

8.10.6.1 Remote Span Calibration

Your scale can be span calibrated remotely using this function. The command format is

@CS <descr> <calibration weight value> <CR>

To do this procedure you will need a calibrated weight of a known value. For this example, we will calibrate the scale's primary platform whose description is "Plat #001" with a 10lb weight, the procedure is described below.

| You send | "@CSPlat #001   0010.0000<CR>" |
| Scale responds | "Remove all weight from the platform and then send a CR." <CR><LF> |

You remove the weight from the platform.

| You send | CR |
| Scale responds | "Place the calibrated weight on the platform and then send a CR." <CR><LF> |

You place the calibrated weight in the center of the platform.

| You send | CR. |
| Scale responds | "Remove all weight from the platform and then send a CR." <CR><LF> |

You remove the weight from the platform.

| You send | CR |
| Scale responds | "Operation Complete." <CR><LF> |

The scale will then remote calibrate itself and return to the weighing mode. You may have to press the ZERO key (or remote zero key) to get the scale to indicate properly.

8.10.7 Future Interactive Commands [Not Supported]

TARE-READ VALUE (X)	@TV <descr> <CR> (sends <value> <CR> or NOT FOUND <CR>)
TARE-READ ALL (X)	@TA <CR> (sends for each <descr> <value> <CR>. Sends END <CR> and end of list)
SAMPLE-READ VALUE (X)	@SV <descr> <CR> (sends <value> <CR> or NOT FOUND <CR>)
SAMPLE-READ ALL (X)	@SA <CR> (sends each <descr> <value> <CR>. Sends END <CR> and end of list)

8.11 Tips on Interfacing RS232

RS232 transmission and reception takes place over a 3-wire cable, one for transmitted data, one for received data and one for ground. When wiring these lines to a standard RS232 25 pin D connector, the transmitted data line should be tied to pin 3, received data to pin 2 and ground to pin 7. **For 9 pin connectors, the transmitted data line (TX) should be tied to pin 2, received data (RX) to pin 3 and (GND) ground to pin 5**. In some situations, computers and other equipment require handshaking lines to work properly. Many times,

this can be shut off to work with a 3-wire system. If not, you can wire the connector to "trick" the computer etc. to work properly. This involves shorting the RS232 RTS and CTS line together and shorting the DTR and DSR lines together. For 25-pin connectors short pins 4 and 5 for RTS/CTS and pins 6 and 20 for DTR/DSR. For 9-pin connectors short pins 4 and 6 for RTS/CTS and pins 7 and 8 for DTR/DSR.

Shown below is a simple program written in BASIC that will open a com port at 1200 baud and then drop into a never-ending loop that will input frames of information and print them on the computer's screen.

```
10 REM A simple example of a scale to com port interface
20 OPEN "COM1:1200,N,8,1,CS,DS" AS #1
50 REM Never ending loop
52 REM Send a print request to the scale
55 PRINT #1,"*P"
59 REM Input scale's transmitted frame
60 INPUT #1,FRAME$
69 REM display the results on the computer screen
70 PRINT FRAME$
75 REM Small time delay (at least 100ms, see External Command Limitations above)
80 FOR X=1 TO 20000
85 NEXT X
90 GOTO 50
```

8.12 Test Using Terminal

You can also test the scale communication using a Serial Terminal. To do this, first you will need to download a suitable terminal (if you don't have one). We recommend RealTerm (https://sourceforge.net/projects/realterm/files/)

Direct Link to File: https://sourceforge.net/projects/realterm/files/latest/download?source=files

In RealTerm (or your favorite terminal), setup the connection using the COM port of your Serial Communication.
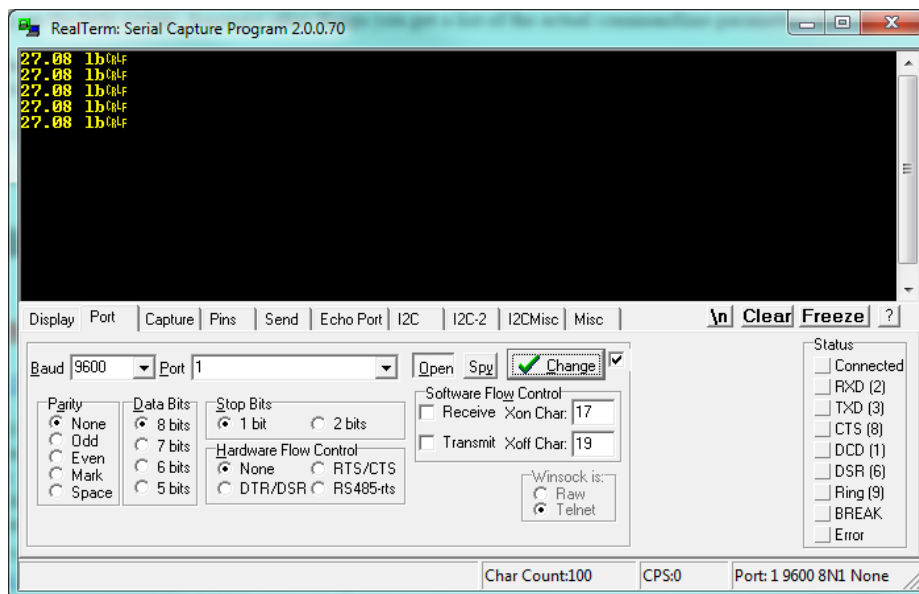
Make sure the **Port** designation on the bottom right of the screen shows the correct connection parameters. Then press the PRINT button on the scale to start sending data on to the terminal.

Alternatively, you can also send Print Command to the scale to retrieve weight. Use the **Send Tab** to do this:
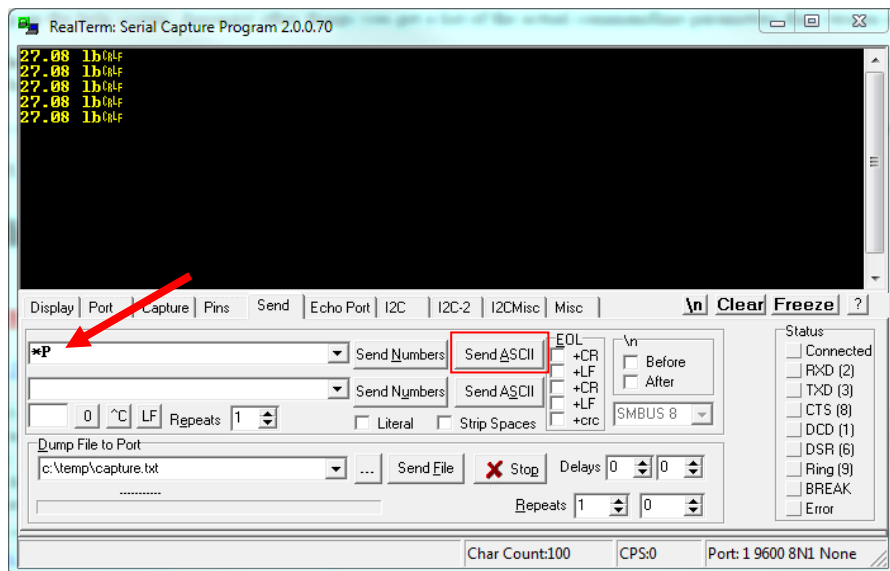
9 TIME AND DATE

When your scale is equipped with the time and date option you can get time and date and day of week readouts on the screen or use them in RS232/USB/Ethernet output frames. The time can be printed in either 12 or 24-hour format. Consult the section on Print Frame Functions for details. The screens for setting the date and time can be found under the menu SETUP MENU → OPTION SETUPS.

10 ANALOG OUTPUT

This option is a fully configurable analog output port that can be configured for current loop outputs. The factory has preset the output to 4-20 mA. This range is configurable and it is explained in the second paragraph of this section. The output follows the display and its gain is based on the platform's programmed overload point. For example, in the case of a 100lb scale whose output is configured as 4-20mA, 0lb = 4mA, 25lb = 8mA, 50lb = 12mA and so on.

The starting and ending currents can be configured by the user. For example, the output's starting and ending points can be set 4mA to 20mA. Further, there is an option allowing negative displayed numbers to be output for cases where a reading below zero needs to be monitored. As an example, a 100lb scale is setup with its starting current at 10mA and ending current at 20mA, giving the output of -100lb= 0mA, -50lb = 5mA, 0lb = 10mA, 50lb = 15mA and 100lb = 20mA.

The Analog Output can also be configured to output voltage. The output can be configured for a voltage range between 0-5VDC. This configuration can be requested to be done at the time of processing the order. However, this can also be done by the customer. Simply connect a 250-ohm ¼ watt resistor between the output terminals. Set the starting and ending currents to be 0mA and 20mA. Using Ohm's law (V = I x R), you will get from 0VDC (0mA x 250 ohm = 0V) to 5VDC (20mA x 250 ohm = 5V). Just put a voltmeter across the terminals to get these values.

Using any value of the resistor, the scale can be configured to output a customized range of voltages based on customer requirements. However, the voltage cannot exceed 6VDC. The current output component cannot support a voltage drop larger than this value.

10.1 Wiring Diagram
The 4-20mA wiring diagram can be found here: https://www.arlynscales.com/indicator-analogoutput/

10.2 Analog Setup Menu

The analog setup menu can be found under menu SETUP MENU → OPTION SETUPS → ANALOG OUTPUT.

Programmable parameters are as follows:

Activate – ACTV - Will activate or deactivate the option.

Start Current – START - The starting current that will correspond to zero on the display.

End Current – END - The ending current that will correspond to the full-scale weight on the display.

Negative Reading – NEG - Allows negative displayed readings to affect the analog output. If disabled, the output will stop at the programmed starting current when there is a negative number on the display. This should not be confused with a negative current on the output. The lowest possible current is zero.

Multi DAC* – MDAC – This option only appears for multiple platform configurations. It only applies to those scales with multiple analog output cables coming out of the display.

- **Enabled** – If Multi DAC is enabled, then the scale will enable the Multi-Channel Analog Output behavior as noted in the Special Note for Multiple Platform Scales section.
- **Disabled** – If disabled, then the scale will revert to the Single Channel Analog Output behavior on Analog Output Channel 1.

10.3 Special Note for Multiple Platform Scales

For Multiple Platform scales, the Analog Output option can come in two configurations.

10.3.1 Single Channel Analog Output

In single channel analog output configuration, only one analog output cable is implemented from the display. This means the analog output (4-20mA, 0-5V, etc) will only reflect the weight value based on the current platform selected. For example, if the screen is showing weight for Platform 1, the analog output reading will be for Platform 1. You can monitor the weight from each platform on the indicator screen by using the SHIFT+UP/DOWN arrow keys.

Indicators equipped with multiple platforms also have a special screen (i.e. the Multiplatform Screen) that shows the weights on all the connected platforms and the total from all of these platforms. In this screen, there is an arrow that indicates the actions that can be taken on the indicated platform. If the arrow is on Platform 1, then the analog output will reflect Platform 1. The same applies for platform 2. While in this screen, the analog output can also reflect the total sum of weights on all the platforms.

To make the Analog Output reflect the "Total Weight", press the SHIFT + 6 in sequence (not together). When the Total Weight Analog Output feature is activated, the analog output will only reflect the total. It won't reflect on any of the platforms. Press the SHIFT + 6 key sequence again to revert back to having the analog output signal reflecting the weights on individual platforms.

10.3.2 Multi-Channel Analog Output

In multi-channel output configuration, the display is equipped with two or more analog output wires coming out of the cable. This means that each analog output channel will reflect the weight of the individual platform it is mapped to. For example:

- Analog Output 1 is mapped to Platform 1
- Analog Output 2 is mapped to Platform 2
- …

Visit https://www.arlynscales.com/multiplatform-analogoutputwiring/ for the wiring diagram.

Please note that for the Analog Output multi-Channel behavior to be active, the "MultiDac" option in the Analog Output Settings must be enabled.

The "Total Weight" behavior is similar to what is described in the Single Channel Analog Output section above. Press the SHIFT + 6 key to enable "Total Weight" signal on Analog Output channel 1. Press SHIFT + 6 key again to revert back to multi-channel behavior.

11 SETPOINT CONTROLLER

The setpoint controller gives your scale the capability to output a signal to external equipment when certain conditions are met. This is particularly useful in filling operations, either to sound alarms or to control filling machinery.

A Setpoint Command Set is a recipe of commands that the scale executes based on the current weight reading. In operation, if the displayed weight satisfies the recipe, the command set directs any of the outputs to switch on or off. The MKE-5 Indicator only supports the storage of 3 Setpoint Definitions (or 3 Recipes). This means you can define up to sixteen commands directed towards any output but only within 3 Setpoint Definitions (each containing 16 commands). If you require more than three Setpoint Definitions, (or more than 3 Setpoint Recipes), please look at our Arlyn UpScale Touchscreen Indicator.

With a little finesse in creating formulas, simple setpoints, filling control cycles, over and under check weighing, and many other functions are possible.

IMPORTANT NOTE: During Scale reboot, the scale will momentarily toggle all setpoints to check for malfunction. This might cause your valve systems to open (or close) during that initial moment. A fix is already being implemented (as of this writing) for this issue. All Software versions at 6.123b and below will have this feature. A workaround would be to add a manual switch that would be used to shut off your system if the scale is every rebooted.

11.1 Output Specifications and Notes

The setpoint controller has eight separate outputs and is expandable to sixteen. Each output is an open collector that is capable of sourcing 4.5ma or sink 10ma of current. Care must be taken not to exceed these values. This is sufficient to drive LEDs or sound buzzers. If higher output currents are needed then external relays need to be installed. We normally provide 117VAC, 10Amp Solid State Relays as an optional add-on. We also provide 60VDC DC Solid State Relays. Optical relays have some important advantages over mechanical relays, the actuation current for optical relays is usually less an 10ma but mechanical relay coils require currents often exceeding the limit. Optical relays have no mechanical switches to wear out and more importantly they isolate the scale from the load, thus protecting it from voltage spikes. If excessive noise is coupled back to the scale it could lock up or damage its microprocessor or memory.

It should be noted that when you command an "OFF" CONDITION, the output will be grounded. In most open collector (switched ground) wiring schemes this will actuate the external light or relay. To help eliminate this confusion, each setpoint formula has an optional invert function to invert the output.

Even though the output is an open collector, it differs from the standard open collector output in that the output will assume a high condition (3.3VDC) when it is switched on without the need for an external pull up resistor, allowing direct connection into any TTL level input.

11.2 Create your First Setpoint – A Tutorial

11.2.1 Overview

Generally, a Setpoint has already been created for you when you first receive your scale. However, if you would like to create your own, the following tutorial instructs on how to create simple setpoint definition that will activate a setpoint on a certain target weight. In this example, the Setpoint Output 1 will turn ON only if the weight is equal to or greater than 10 lbs. The Setpoint Command Set will look like this:

CMD	EXP	VALUE (lb)	OUT	Commentary
OFF	<	10	1	// If weight is less than 10 lbs, turn off Output 1.
ON	>=	10	1	// if weight is greater than or equal to 10 lbs, turn on Output 1.

NOTE: Setpoint Output 1 is mapped to a red LED indicator on the front panel of the display. If Output 1 is "ON", the red LED will turn on. If Output 1 is off, the red LED will also shut off. This way, you can check if your formula is working properly.

11.2.2 Instructions

Follow the steps below:

1. Press the MENU (5) Key.
2. Scroll to Option Setups. Press the ENTER key.
3. Scroll to Setpoint Controller. Press the ENTER key.
4. At the bottom of the screen, you will see the following actions:
   a. ACTV = To Activate the selected Setpoint Definition
   b. EDIT = To modify the selected Setpoint Definition
   c. NEW = To create a new Setpoint Definition
   d. DEL = To delete the selected Setpoint Definition
5. Press RIGHT ARROW key (6) until "NEW" is highlighted. Press the ENTER key.
6. You will see a new Setpoint Definition has been created called "000Setpt".
7. Once the Setpoint Definition has been created, we can start configuring it.
8. At the bottom of the screen, Press the LEFT ARROW (6) key until "EDIT" is highlighted. Press ENTER key.
9. You should be in the Setpoint Definition configuration screen. Refer to the Setpoint Definitions Section below to learn more on different parameters and what they do. By default, leave everything as is. You can modify the parameters here once you learn more about what they do in the sections below.
10. Next is to add setpoint commands to this Setpoint Definition. The commands will tell the scale what to do once a certain weight value is reached. At the bottom of the screen, press the RIGHT ARROW (6) key, and make sure the "EDIT" is highlighted once again. Press the ENTER key.
11. You should be in the Setpoint Command screen.
12. The following commands are available at the bottom of the screen
    a. NEW/INS = allows the user to create a new setpoint command.
    b. DEL = Deletes the setpoint command.
    c. CMD = Allows the user to turn on/turn off the setpoint output.
    d. EXP = Allows the user to change the expression of the command line.
    e. OUT = Allows the user to change the setpoint output.
    f. VAL = Allows the user to enter the target weight value.
13. At the bottom of the screen, make sure "NEW" is highlighted. Press ENTER key.
14. A new command line is created

CMD	EXP	VALUE	OUT
OFF	<	.0	1

15. Press the RIGHT ARROW (6) key until VAL is highlighted. Press ENTER key. A highlight question mark ('?') will appear in the "value" area of the command line.
16. Enter the desired weight value. For our case, we will enter 10 using the number keys. Press ENTER key.
17. The following result will look as below:

CMD	EXP	VALUE	OUT	
OFF	<	10	1	// If weight is less than 10 lbs, turn off Output 1.

18. Press the LEFT ARROW (4) key, and make sure "NEW" is highlighted again. Press the ENTER key
19. The next command line is created:

CMD	EXP	VALUE	OUT
OFF	<	.0	1

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20. Press the RIGHT ARROW (6) key until the "CMD" is highlighted. Press the ENTER key.
21. CMD has been switched from "OFF" to "ON".
22. Press the RIGHT ARROW key (6) until "EXP" is highlighted. Press the ENTER key.
23. Keep on pressing the ENTER key until the expression shows as ">=".
24. Press the RIGHT ARROW (6) key until "VAL" is highlighted. Press the ENTER key
25. Type in 10. Press the ENTER key.
26. The result for the second command line should look like the following:

CMD	EXP	VALUE	OUT	
ON	>=	10	1	// If weight is greater than or equal to 10 lbs, turn on Output 1.

27. The final result of the formula setpoint definition should be the following:

CMD	EXP	VALUE	OUT	
OFF	<	10	1	// If weight less than 10 lbs, output 1 turns off.
ON	>=	10	1	// If weight is greater than 10 lbs., output 1 turns on.

28. Press the BACK (5) key twice until you are once again in the "Setpoint Definitions" screen. This where you will see the "000SetPt" and an arrow pointing to it on the left side of the screen.
29. At the bottom of the screen, make sure "ACTV" is highlighted. Press the ENTER key.
30. The setpoint has been activated.
31. Continue pressing the MENU (5) key until the main weight display screen appears.

11.2.3 Test your Setpoint Command Set

Now that you have created your first Setpoint Definition, press the platform with your hand to make it reach 10 lbs and over. Once the 10 lbs (or greater is reached) check if the red LED on the screen is toggling on and off based on the weight reading on the display.

11.3 Creating Setpoints Formulas

To access setpoints, go to the menu SETUPMENU/OPTION SETUPS/SETPOINT CONTROLLER.

11.3.1 The Setpoint Definition Screen

In this screen, you will see a list of available setpoint definitions. If there are none, you will see "None Defined". The creation, editing and deletion of setpoints are similar to the creation of tares and parts counting samples. To add a new setpoint definition, select NEW on the lower menu and press ENTER. A New Setpoint Definition will then be added to the list with a description of "SetPt#001". This new setpoint definition is deactivated and contains an empty formula list.

To edit this new setpoint definition or any other one, use the UP and DOWN ARROW keys to select the desired setpoint definition, select EDIT on the lower menu, and then press ENTER. The Edit Setpoint Definition screen will be shown.

Invert – INV=On/Off: If it is on then all outputs related to this setpoint will be inverted. This is useful when using the open collector output for the reasons stated earlier in this section.

Cycle Mode – CYCLE=On/Off: The cycle option is used to create an operation cycle as described earlier in this section.

Negative Reading – NEG=On/Off: The Negative option is used to determine if the scale needs to evaluate negative weight values. If NEG = Off, then the setpoint controller will not evaluate negative weights, as in it will treat both negative and positive weights the same. Example, if the display shows -10 lbs or +10 lbs, the setpoint evaluator will evaluate these values as positive values. If NEG = On, then it will differentiate between the two values.

Platform – PLAT=PL1: This option only appears when the scale is equipped with Multiple platforms. The user can select if the setpoint conforms to a particular platform. If it is the case, then the setpoint will only evaluate weights corresponding to that platform.

Parts Counting – PARTS=On/Off: This option only appears when the scale is equipped with Parts Counting. The user is given a choice of whether the setpoint should respond to count value instead of weight value.

To change any of these options simply select the appropriate entry in the lower menu and press ENTER.

11.3.2 Creating and Editing Formulas

The formula is a list of up to nine lines that are evaluated and acted upon in the order they are entered.

To access the formula list select EDIT in the lower menu and then press ENTER. All of the current formula lines will be displayed or "None Defined" if there aren't any. Using the NEW and INS in the lower menu to add or insert new lines.

Each line consists of four parts. These are CMD (command), EXP (expression), VALUE and OUT. CMD is an action to take. The only two commands currently available are ON and OFF. EXP is an expression and can be < (less than), <= (less than or equal to), > (greater than) and >= (greater than or equal to). Value is the setpoint weight value and OUT is the output channel (1-8) that the CMD command will work on.

 For example, a simple formula to activate the output when a certain weight is exceeded is made up of two lines as shown below:

CMD	EXP	VALUE	OUT	
Off	<	5.0	1	// Start with light off
On	>=	5.0	1	// On if 5lb or greater

This can be interpreted as:

Line 1: Output #1 is off if weight is less than 5.00lb
Line 2: Output #1 is on if weight is greater than or equal to than 5.00lb

You will notice that every output possibility must be dealt with when creating a formula.

The next example represents a much more complicated definition. The scale would have three lights connected to three outputs and operate in an UNDER / ACCEPT / OVER check weighing scenario.

There will be a red light connected to output #1 to indicate an "**under**" condition, a green light connected to output #2 for an "**accept**" condition and a yellow light connected to output #3 to show an "**over**" condition. We can program the red light to be on whenever the weight is less than 5lb, the green light to be on only between 5 and 5.2lb and the yellow light to be on whenever the weight is above 5.2lb indicating an over condition. In practice, the user would start filling the container until the green light comes on.

It is less confusing to make a formula of this nature if you deal with the complete operation of one light at a time. We recommend laying the formula out on paper first and then enter it into the system.

CMD	EXP	VALUE	OUT	
On	<	5.00	1	// Deal with "under" (red) light first
Off	>=	5.00	1	
Off	<	5.00	2	// Now the "accept" (green light), to be on only between 5 and 5.2lb
On	>=	5.00	2	
Off	>	5.20	2	
Off	<=	5.20	3	// Now the "over" (yellow) light to be on anytime the weight is above 5.2lb
On	>	5.20	3	

When this formula is executed, the scale evaluates each line in order. This calculation is done in memory only, and the outputs are not affected until the formula is complete. The entire formula is evaluated on each and every display update, which is programmable through the system menu.

You may wonder why it is necessary to have to use an On condition at the beginning. This was done to increase flexibility as there may be many cases where the user wants the light to start in the on state, turn off during a certain weight range and on again when above that range. You have to specify every possible condition for the output when making formulas.

This last example will show an automated filling operation using the cycle option. The goal here would be to have output #1 connected to a filling valve and the cycle starting with this valve in the off condition. The user places a box on the scale below the filling apparatus, press the ZERO key to zero out the weight of the box, press the ENTER key to start filling and have the setpoint controller switch the filling valve off when 5lb is reached. The user then removes the box from the scale and the output will remain off until the next cycle is initiated by pressing the ENTER key.

Start in the setpoint definition screen by enabling the CYCLE option and setting the INIT option to off.

Here is the formula:

CMD	EXP	VALUE	OUT	
On	<	5.00	1	// Will actually go on as soon as the ENTER key is pressed.
Off	>=	5.00	1	// Switch off at 5 lb and end cycle

That's all there is to it. The output will go off at 5lb and remain off until the next cycle.

11.3.3 Notes on Cycle Mode

The cycle function is used when it is desirable to "latch" the output to a specific state when a process is complete. Consider the following examples with and without the cycle option. In both cases the setpoint is set to fill a box to 5lb and then shut off.

Cycle Off: The output is on as the box fills and the scale monitors the process. At 5lb the output switches off. The user then removes the box from the scale. When he does that, the indicated weight falls below 5 lb, the filling valve switches back on dumping material all over the platform.

Cycle On: When 5lb is reached the output switches off, and remains off until the user initiates the cycle again by pressing the ENTER key.

There are two other points concerning process cycles:

1. There may only be one cycling setpoint definition active at any given time. All other activated setpoint definitions will work normally along with it.

2. To abort the cycle, press the ENTER key. The output will then obtain the same state it would have taken if the process had completed normally.

When changing the command line operations within a Cycling Setpoint Definition, you must **REBOOT** the scale for the settings to take effect. This requirement is only for a Cycle mode setpoint. If you do not reboot, then the previous settings will continue to remain active.

11.3.4 Output Connector and Pin Diagram

In most cases there will be a single cable with a 15-pin subminiature D type female connector added to the scale for interfacing to external equipment.

PIN	SIGNAL
1	Setpoint #4 Output
2	Setpoint #5 Output
3	Setpoint #6 Output
4	Setpoint #7 Output
5	Setpoint #8 Output
6	Setpoint #3 Output
7	Setpoint #2 Output

8	Setpoint #1 Output
9	N/C
10	+3.3VDC
15	Digital Ground
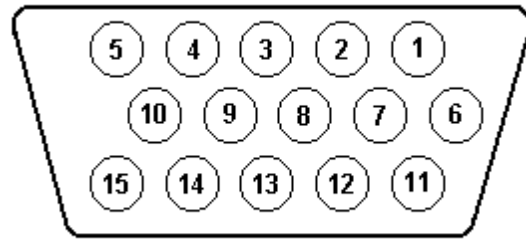
12 WEIGHT AVERAGING

The weight averaging option allows the scale to display an average weight taken from the platform over a specific time period. Readings are sampled from the platform forty times per second so a five second average would average 200 readings. Weight averaging can be setup to operate from a front panel key (the "8" key) or to operate on a continuous basis.

12.1 Push Button Operation

Pressing the EIGHT- key will start the average. While the average is being taken, the status bar on the bottom of the screen will display "**Avg**" and the graph bar will show the amount of time left. When the average is completed the result is locked on the display and the text "**Loc**" will be shown on the status bar. While the reading is locked the UNITS, NET/GROSS and other front panel keys will still operate as normal. To release the lock simply press the EIGHT-key again. While the average is being taken it can be aborted at any time by pressing the EIGHT-key.

12.1.1 For Multiple Platforms
For Multiple platforms, if you have selected the Multiple Platform screen, then press the "6" button to perform weight averaging.

12.2 Continuous Operation

When configured for continuous operation, constant averages at the selected time interval will be taken and locked on the display. The text "**Avg**" will be shown on the status bar and the time progress shown on the graph line. The average key (the EIGHT-key) is used to start and stop this process.

12.3 Configuring the Weight Average Option

The configuration parameters for the weight average option can be found in the menu SETUPMENU/OPTION SETUPS/WEIGHT AVERAGING. There are three settable options here.

Activate – ACTV: Activates or deactivates weight averaging.

Type of Averaging – TYPE: Push button or continuous operation.

Time of Averaging – TIME: Average acquire time can be set from one to sixty-three seconds.

13 MULTIPLE PLATFORM OPERATION

Your scale has the capability of displaying weights from up to three (3) platforms. There are only a few basic operational differences between a single platform configuration and a multiplatform configuration. Please see the figure below:
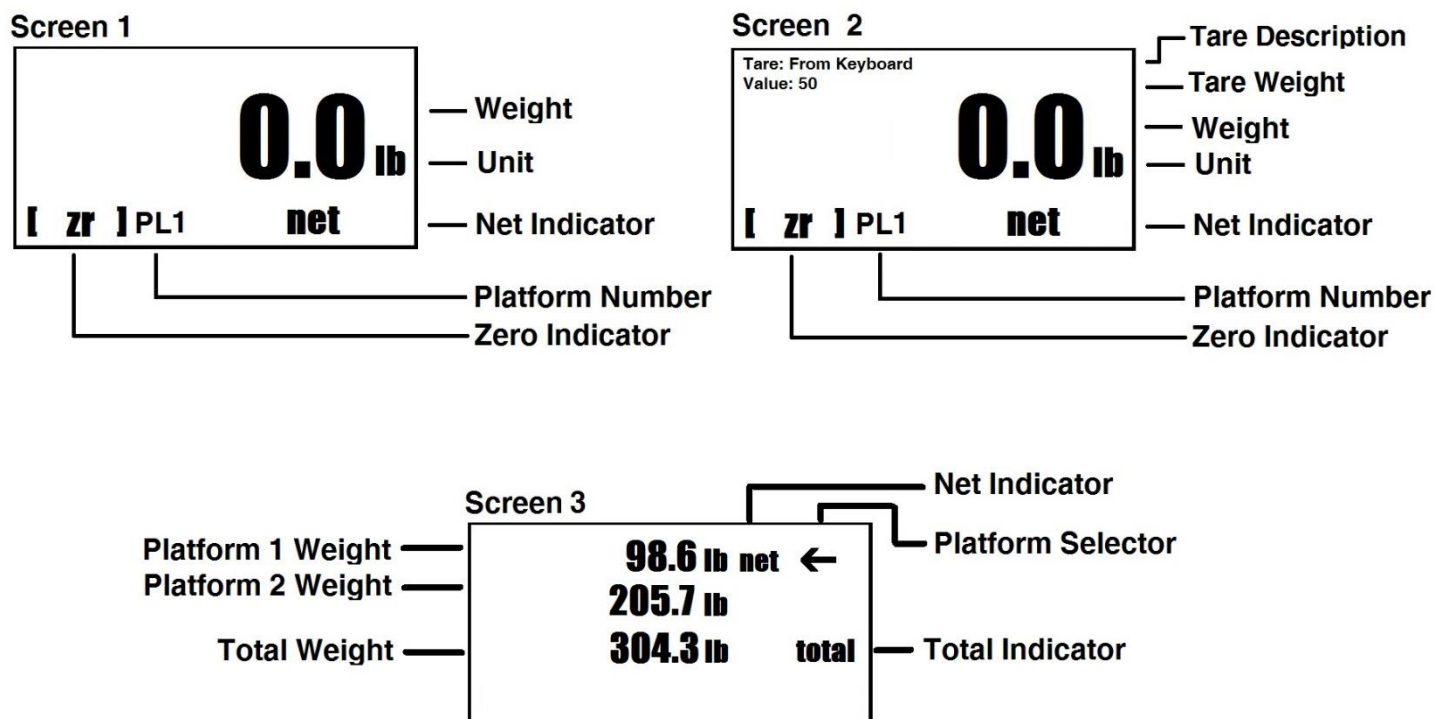
1. An extra display screen (i.e., Multiplatform Screen) is added showing the readings from each individual platform as well as the total weight from all platforms.

2. When viewing individual platform screens, you can manually scroll through different platforms. Press SHIFT+UP in sequence or SHIFT+DOWN in sequence to scroll through the platforms. On the primary weight screens, the active platform number is indicated on the bottom of the screen just to the right of the status bar (PL1, PL2 etc.).

3. On the Multiplatform Screen, you can just use UP key or DOWN key without the need to press SHIFT key. For example, to zero platform 2 use the DOWN ARROW to get the indicator on the right side of the screen to point at platform 2 and then press the ZERO key.

4. An extra menu is inserted in the menu SETUP MENU → PLATFORM SETUPS. This is a menu that shows the description of each platform and allows you select one for editing.

5. When taking or activating tares, parts counting samples, taking a quick sample or pressing the TARE, UNITS, NET/GROSS or ZERO key, the operation will be performed only on the currently selected platform.

6. An auto-scroll feature is available in the Platform Setup screen. This feature allows the indicator to scroll through individual weight screens at specified time intervals. To setup auto-scroll, go to SETUP MENU → PLATFORM SETUP. Choose any activated platform and press EDIT. Scroll down to MULTIPLATFORM SETTINGS. Press ENTER. The horizontal options and the screen text should be clear enough to set the correct settings. It is recommended that the scroll timer should be set no less than 5 seconds. Any number lesser than that can cause some instability in scale readings.

7. FOR DUAL PLATFORMS ONLY: To show the difference between the two platform scales, do the same steps as defined in step 6 above. In the MULTIPLATFORM SETTINGS, select Platform Total to be either "**Sum**" or "**Difference**".

8. If the multiple platform scale has options attached to it, such as RS232, USB, Analog Output, Setpoints, etc. make sure to read the special notes for that section, if any, that might apply specifically for multiple platform operation.

14 BATTERY PACK OPERATION

The Battery Pack Option will allow the scale to be operated in areas where no power is available. The battery pack itself is installed inside the indicator housing and is not user serviceable in any way. The only external differences are the addition of a Main Power toggle switch and power transformer connector located on the right side of the indicator housing.

To charge the pack, simply leave the scale plugged in for about four hours. The charging circuitry has a peak detect and will stop charging once the battery has reached its peak. The scale may be operating normally while charging. See the Main Power Toggle Switch section for special notes on charging.

14.1 Typical Discharge Time

The battery pack allows a scale equipped with a single load cell platform (models 620 and 820) to operate for about 15 hours on a single charge. For scales that have multiple load cell platforms, running time is slightly shorter. A four-load cell platform, like the model 320, will run for about 8 hours.

14.2 The Main Power Toggle Switch

There is a main power switch located on the right side of the indicator. Its only function is to completely remove power from the main circuit board in the event of a microprocessor program crash or any other event that causes the scale not to be able to switch itself off. This toggle switch is also responsible for charging the battery. If the toggle switch is left in the open (DOWN) position, then the battery will not charge. This toggle switch should be left in the closed (UP) position during all normal operation.

14.3 The Front Panel On/Off Switch

The front panel On/Off switch is used to switch the scale on and off during normal operation.

To turn the scale on, simply press the button and the scale will start its initiation sequence. To turn the scale off, press and hold this button for approximately three seconds until the display blanks out and then release it.

14.4 Auto Shutoff Setup

The scale can (and should) be setup to automatically turn itself off when a programmed time has been reached and/or there is no activity on the scale. This is done through the Auto Shut-Off screen. You may also want to skip the splash screen and ready prompt on startup. You can do this in the menu SETUP MENU → SYSTEM → STARTUP PARAMETERS.

 The scale's auto shutoff operation can be activated and changed in the menu SETUP MENU → SYSTEM → AUTO SHUT-OFF. There are two options available.

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

Auto Shutoff Timer – TIME: Is the time, in minutes, that the unit will shutoff due to inactivity.

14.5 Battery Operation Summary

1. Plug in power transformer.
2. Place the toggle switch on the right side of indicator to the "On" position.
3. Let the batteries charge up (approx. 8hrs).
4. At this point your scale should be operational & ready to use.
5. You can leave the power transformer plugged in while using the scale
6. To shut off the scale press the "On/Off" key once.
7. To turn on the scales press the "On/Off" key to turn on the scale.

8. Press the "On/Off" key again & your scale will be operational.
9. Only shut off toggle switch if you are not going to use the scale for a long period of time.
10. If the toggle switch is not on the "On" position the scale will not charge.

14.5.1 Note

The scale will automatically shut off if the scale is not being used in 15 min (by default). You can change the "Shut Off Time" or disable the shut off time internally in the system menu.

15 STATISTICAL PACKAGE [Not Supported]

The Statistical Package allows you to save a large number of readings in memory for future use. Here are some of its features:

- You can transmit the entire data collection through the RS232 communications port to a printer or computer for later analysis.
- You can view a "result screen" which will show the minimum reading, the maximum reading, the average, and total.
- The data collection is held in memory even if the power is removed.
- Readings can be saved by simply pressing a key.
- Shares memory with the scale's operating system for maximum storage efficiency.
- Main screen shows when data collection is active and the number of readings collected.

15.1 Statistical Menu

This menu contains all of the functions associated with the statistical package. It is located at SETUP MENU / OPTION SETUPS / STATISTICAL.

The items in this menu are:

SETUP: This is a simple configuration screen for the statistical package.

CLEAR MEMORY: This will clear all collected data from memory.

TRANSMIT DATA: This will transmit the entire data collection through the RS232 communications port. Each collected reading is transmitted along with a carriage return (ASCII 13) and a line feed (ASCII 10). All collected readings are transmitted. Memory does not automatically clear after transmission.

VIEW RESULTS: This screen will show some basic information about the data collected. These are the minimum reading, the maximum reading, the total and average reading.

15.2 The Setup Screen, Configuring the Statistical Package.

This screen will allow you to specify if the statistical option is active or not, and also how much memory to set aside for data collection. Any time you enter this configuration screen, the data collection in memory will be erased.

There are only two configurations on this screen:

ACTIVE: Set to YES in order to enable data collection. If enabled, the top line of the main weight display will show an inverse "Data:", followed by the number of readings currently collected in memory.

SIZE: The memory set aside for data collection uses the same memory and storage techniques as the memory used by the scale's operating system for storing tares, counting samples, print frames and other data. If you aren't using the scale's memory for those other uses, you will have roughly 470 free slots available for data collection, depending on the scale's configuration. Each slot will hold 8 readings, so at maximum, 470 x 8, or 3760 readings may be collected.

To configure the memory, enter the new size through the setup screen. Size is the number of readings (maximum) that you would like to be able to store. This number will automatically be rounded up to the next multiplier of 8 (8 readings per slot). The memory is then set aside for data collection, and becomes invisible to the rest of the system. This being the case, if you configure a large memory area for data collection, you will be restricted as to the number of storage slots available for other uses.

15.2.1 Adding a Reading to the Collection
Simply press the ENTER key at any time while you are in the main weight screen. The current reading will be saved and the top line will show you how many readings have been collected. If the data collection memory is full, you will see a warning message at this time.

16 KEY LOCK PASSWORD PROTECT

This key lock option adds the capability of disabling the front panel by having all of the function keys locked out, until a valid password is entered. Once a valid password is entered, the keys will remain unlocked until the scale is powered down and powered up. By default, the option is not active until an initial password is set.

16.1 Keypad Lock
1. Press the menu button. Unlock keys by entering the current password, if necessary.
2. Navigate to Options Setup and then scroll down to "Set Password".
3. "Enter new password" will appear on the display. Enter the desired password (4 digits long)
4. Confirm the password by retyping the intended password. Confirmation is used to assure that a mistyped password is not stored.

16.2 Keypad Unlock
1. Press menu button.
2. "Enter Password" will appear on the top line of the display. Enter the password previously set.
3. The function keys will remain unlocked until the scale's power is powered down and powered up.

16.3 Deactivating Keypad Lock
1. Follow the above procedure for setting the password.
2. Instead of entering a password simply press enter twice.
3. This will clear the password and deactivate the key lock option until the password is set again.

17 USB COMMUNICATION

The USB communication framework is similar to the RS232 Communication Framework. The USB Communication option is a fully capable, bi-directional communications port. The output data frames can be customized to certain data types other than weights from the scale. The printing of a frame can be initiated by pressing the print button, by an external command, upon reaching a setpoint (not currently supported), or continuously when the print stream mode is activated.

The communications port also contains an extensive external command interface allowing the ability to perform remote key presses.

17.1 Configuring the Port
Baud rate and other parameters can be configured through the Port Configuration screen that can be accessed under menu SETUP MENU → OPTION SETUPS → USB COMMUNICATION → PORT CONFIG. In this screen, you can only **enable** or **disable** the USB Communication port.

Perform Test Print
[Refer to Perform Test Print in RS232 Chapter]

17.2 Print Stream Mode

[Refer to Print Stream Mode in RS232 Chapter]

17.3 Print at Stability Using Motion Detection and Stability Control

[Refer to Print at Stability in RS232 Chapter]

17.4 Print Frame

The USB Print Frame configuration is shared with the RS232 Framework. Refer to Print Frame in RS232 Section.

17.5 External Command Interface

[Refer to the External Command Interface in RS232 Section]

17.6 PC Driver Installation and Testing

For instructions on installing USB drivers for PC and general information about USB Interface, please refer to the **MKE-5 USB Manual** on our website at http://www.arlynscales.com/product-manuals-specification-sheets/

18 DATALOGGING (USB Memory Stick)

The optional USB Data Logger module allows a large amount of data from your scale to be recorded into a USB Flash Drive. The Flash Drive maybe removed from the scale and inserted into a standard USB port on a PC. The data is collected on a .CSV file (comma-separated values), which can be opened using any spreadsheet software such as Microsoft Excel®.

18.1 Basic Operation

Data Logger is activated by default. To activate/deactivate it, press MENU -> OPTION SETUPS -> DATA LOGGING**.** There are two selections on this screen.

18.1.1 Datalogging Settings

In the horizontal menu displayed in the Data Logging Settings screen, select ACTV to activate/deactivate Data Logging.

There are two modes of operation for using the USB Data Logger:

Triggered – The weight entry is written to the USB when the user presses a button

Continuous – The weight entry is written to the USB at regular time intervals selected by the user.

To switch modes of operation, on the Data Logging setup screen select TYPE on the horizontal menu to switch between triggered and continuous type logging.

In Triggered Mode, press the TWO (2) key each time to log the current weight and time on the USB drive. This will be noted by a "**Write**" and then "**Recorded**" message on the status message area of the screen each time the TWO key is pressed. Sometimes the "Write" message may appear very quickly to be noticed. As long as the "Recorded" message appears, know that the data has been recorded successfully.

In Continuous Mode, press the TWO-key to begin the data logging sequence. A "Data Logging On" message will be displayed in the status area, followed by the "Recording Entry" message after the time interval has passed. After that, "Recording Entry" message will appear on regular time intervals specified by the user. The time interval can be set in the Data Logging setup screen. Select the TIME option on the horizontal menu to enter the time interval in seconds.

18.1.1.1 Note about Multiple Platforms

For Multiple platform, when the scale is in the Multiple Platform screen (where all the platforms are viewed at the same time with a TOTAL), the TWO key is already occupied for switching between platforms. Instead, press the SHIFT key (ON/OFF) and then the ENTER

key in succession. Please make sure to see the "**Shft**" notification on the top left corner of the screen before pressing the ENTER key. The ENTER key may have to be held a half-a-second longer to register the "Recording Entry" notification.

The SHIFT+ENTER key-sequence will have the same effect as the TWO-key described above in the Basic Operation section.

18.1.2 Datalogging Print Frame

In this screen, you can configure what data can be recorded in during the Datalogging sequence. This section should not be touched. It has been configured in-factory to record the Date, Time, Weight and Unit on the USB stick. If this is not sufficient, please refer to the Advanced Operation.

18.2 USB Flash Drive Use

Your Data Logging scale comes with a 4 Gigabyte (4 GB) USB flash drive that can hold more than 4 million readings! For those scales equipped with Data Loggers, the indicator will always test the Data Logger system and check for a USB flash drive at power up. The USB Stick can also be **hot-plugged** to the indicator at any time. This means that you can plug the USB stick while the scale is powered up and operational, just like you would with a computer. When the USB stick is detected by the indicator, a quick message will show up at the top of the screen "USB stick conn."

The scale can support both FAT and FAT32 file system format.

If the USB flash drive has never been used with the scale, the scale software will create the file DATA.CSV automatically. This is the file the scale uses to store the weight entries. When recording new data on a card that already contains the file, the scale will look for the file and append the new weight entries to the end. This file can then be opened using Microsoft Excel® or a text editor.

If the scale detects the DATA.CSV file, it will just append new data to the existing file. It is recommended to prevent this file from getting too big. Clear the file out or copy it somewhere after it reaches 100,000 records. It will keep things manageable.

The USB drive cannot be plugged in while the scale is on since the USB Data Logging system initialization routine happens only at power up. But there is no harm if the USB drive is plugged in while the scale is on and an attempt is made to write data into it. In this case, the status message will display "Recording Entry", followed by "Can't Open File…" This means that the file DATA.CSV cannot be opened at this time.

The USB drive comes pre-formatted. It is not recommended that you reformat the USB drive.

When deleting weight entries from the USB Flash Drive, it is important not to leave the file empty. The data on the drive can be anything - a period or a space or carriage return – so long as there is some data in the file.

If you are using the scale in Continuous Mode, we recommend that you temporarily put the scale into Triggered Mode while the USB drive is plugged in and test it for operation.

18.2.1 Advanced Operation

WARNING: The following descriptions illustrate the advanced operation of changing the frames being printed on the USB flash drive. Incorrect usage of the features described in this section will cause the scale to malfunction. Proceed with caution.

The USB Data Logger can be used to store more than just the time and weight. The system uses Print Frame to determine what data can be stored on the USB flash drive.

The Print Frames feature can be accessed by going to SETUP MENU → OPTION SETUPS → USB DATALOGGING → PRINT FRAME.

In the Print Frame screen, the factory default USB frame is:

FUNCTN	SOURCE	C L	SP	Comments
Date			1	// Line #1, the date
Time24			1	// Line #2, the time (24-hour)
Weight	P1		1	// Line #3, Weight

UniTxt   P1   √ √   0   // Line #4, Units

To change the frame to include more data types, you can refer to instructions outlined in the Print Frame section defined for RS232 Option.

Please note that a frame is only saved when the user moves out of the Print Frame screen. If the scale is turned off while the user is still on this screen, the frame will be lost permanently.

19 ETHERNET (TCP/IP Socket)

On the MKE-5, Ethernet connectivity is realized by integrating a special Ethernet module that acts like an embedded server. You can send commands to it and the scale will respond back with the information you requested. The protocol we use is TCP/IP (not to be confused with Ethernet/IP protocol that some PLCs use). You can access the scale through Ethernet simply by opening telnet or HyperTerminal with the relevant IP address and port number and send commands to it.

The Ethernet Framework sits directly on the RS232 Framework. In terms of hardware, the Ethernet module is integrated into the RS232 interface. Therefore, there isn't a dedicated Ethernet Configuration screen on the indicator. The configuration is done externally using 3rd-party PC software provided by the manufacturers of the Ethernet module.

The PC software enclosed with the scale will enable you to obtain the IP address of the scale. It will also let you define the socket port number.

Since this module is an embedded server, you cannot connect it directly to your computer. You have to connect it to your office network or a router. You can then communicate with the scale using any computer on your network. The scale will act like another computer on the network. You can then send commands to it and receive weight accordingly.

Since the Ethernet Communication sits on the RS232 Framework, the command and response protocol is also the same as the RS232 communication. Please see the RS232 Print Frame section and the External Command Interface section for further understanding on how this works. Other items such as Print Streaming and Print at Stability also work the same way.

You can customize the Ethernet module to use additional protocols (UDP, etc.) but configuring the module to do that is your responsibility. It comes pre-configured for TCP/IP communication from the factory.

More information about the module is found here:

http://www.lantronix.com/device-networking/embedded-device-servers/xport.html

The scale will be shipped with an CD (Arlyn Ethernet CD). There are three programs that we usually send in this CD. Please take a look at the following information and links to the download sites. If you have looked at the above listed Lantronix sites, two of these software modules are already provided their website.

1. **Lantronix DeviceInstaller:** This will enable you to retrieve the IP address of the scale on your network. You can also use this software to change the settings of the Ethernet module of the scale to fit your needs, such as setting static IP, changing the primary communication protocol, etc. You can find information on this software here: http://ltxfaq.custhelp.com/app/answers/detail/a_id/644

   You may either choose a stand-alone installation or web installation. Personally, I prefer the stand-alone.

2. **Lantronix Com Port Redirector:** This will enable you to map the scale IP address to an available COM port on your computer. Installing and using this software is optional. If you use our Remote Indicator software to retrieve scale data, then it is imperative that you use this software because Remote Indicator can only connect to COM ports for data communication. You can find this software here: http://www.lantronix.com/device-networking/utilities-tools/com-port-redirector.html

3. If you require an out-of-the-box datalogging software, you can take a look at commercial products such as **WinWedge**: http://www.taltech.com/products/winwedge.html. This software can pull data from many types of ports including Ethernet and you can do a lot more with your export data.

For further help on integrating the Ethernet equipped scale to your framework, please refer to the documentation that came with the scale shipping package and the included CD.

The CD Contents can be found here: https://app.box.com/s/w389r18dbtqenx9ogvq3yjjzikaldnz1

20 BLUETOOTH 4.0 (BLE)

For further information on this option, please call our Sales department at (800) 645-4301 or email us at sales@arlynscales.com.
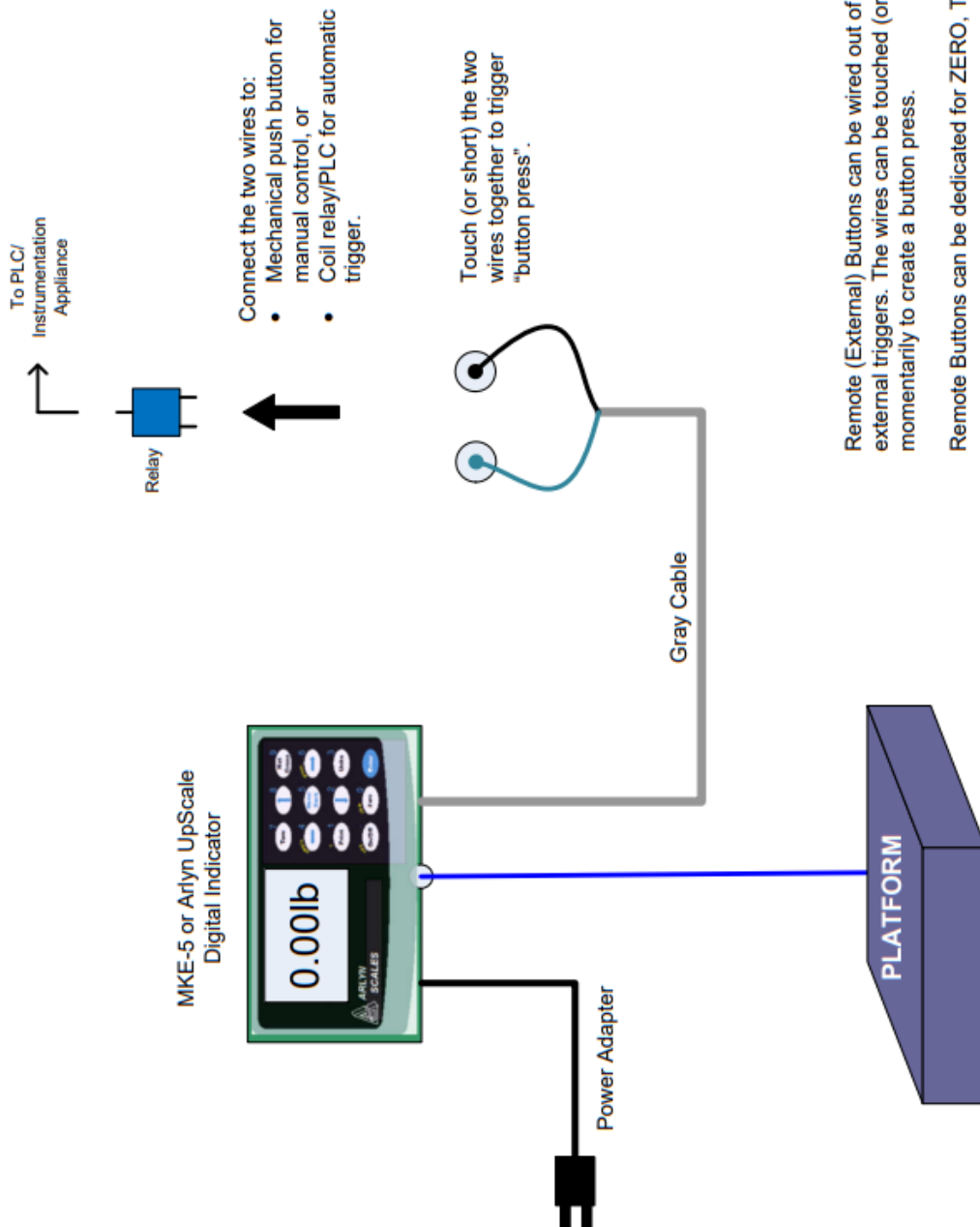
21 REMOTE BUTTONS

Remote Button allows customers to command simple tasks to the scale from a distance using a long cable. The cable coming out from the scale has two small wires on the other end. When these wires are shorted together, a preset command (one of following: ZERO, TARE, PRINT, CYCLE) will be performed. Customers can attach a button to these two wires so that the command is sent on a button press. Customers can also choose to connect these wires to a PLC where the PLC can be programmed to automatically short these terminals at certain conditions. This feature is available on most scales.

The standard length for the Remote Cable is about 6'. This can be spliced to any length by the customer. If a longer cable is desired, please call our Sales Department at 1-800-645-4301 to customize your order.

Note: The Remote CYCLE button is only available on scales equipped with Setpoint Feature. The Remote PRINT button is only available on scales equipped with digital output feature (USB, RS-232, RS-485, Wi-Fi, Ethernet, etc.)

See the Wiring Diagram below.

MKE-5 or Arlyn UpScale
Digital Indicator

0.00lb

Power Adapter

Gray Cable

PLATFORM

To PLC/
Instrumentation
Appliance

Relay

Connect the two wires to:
- Mechanical push button for manual control, or
- Coil relay/PLC for automatic trigger.

Touch (or short) the two wires together to trigger "button press".

Remote (External) Buttons can be wired out of the Digital Indicator for external triggers. The wires can be touched (or shorted) together momentarily to create a button press.

Remote Buttons can be dedicated for ZERO, TARE, PRINT or CYCLE.

Fuck

ARLYN

TITLE				
REMOTE BUTTON WIRING FOR ARLYN DISPLAY INDICATORS				
DATE	REVISED	VERSION	DRAWN BY	PAGE
10/22/2020	10/22/2020	1.00	MMK	1 OF 1

22 KEYBOARD WEDGE

Many situations require scales to send data directly into programs running on a PC. This usually requires the PC to run wedge software in the background, such as WinWedge. There are several disadvantages to this method.

- Majority of the wedge software available today are only compatible with Windows OS.
- They are expensive and have exorbitant upfront costs. As of this writing WinWedge Standard costs $400.
- It is cumbersome to run additional complicated software in the background when the intent is just to send data into an application. This is especially troublesome if there are IT rules and limitations for installing software.

Here at Arlyn Scales, we have solved these issues by providing an option to equip the scale to act as a *keyboard wedge* directly without the need to install complicated software. Simply plug the scale to your PC the same way you would plug a keyboard using USB and press the PRINT key on the scale. The scale will send data directly into the program running on your PC, such as Excel, Word, Databases or even Web pages, as long as the cursor is placed in that location.

Best of all, this feature will work on any platform including Windows, Linux, Apple (iOS, Mac) and Android devices. Once again, no software needs to be installed.

22.1 Operation

1) The scale display should have a USB connector equipped. **Note**: This USB connector doesn't have the same functionality as the USB Communication described in the upper sections of this manual.
2) Plug this USB connector to your PC. The PC will recognize this as a "HID Keyboard" input and start to automatically install drivers for it. Essentially, the PC just sees your scale as a keyboard device.
3) Once the driver install is complete, open Notepad or Word and place a cursor on the page.
4) Then press the PRINT key on the scale. You will see text appearing on the page.
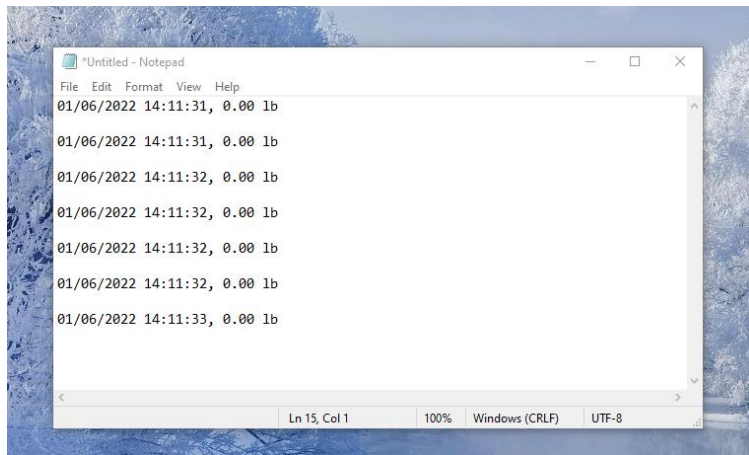
5) This Print Frame is fully customizable. Check the section about Print Frames to learn more about changing the data output frame.

23 PEAK WEIGHT HOLD OPERATION

Peak Weight Hold operation allows the scale to hold the maximum weight placed on the platform within a 2 second timeframe. The weight will be locked on the screen until a sequence of buttons are pressed to release the weight hold. Refer to the steps below to demonstrate Peak Weight Hold.

1) Engage Peak Weight Hold mode by pressing SHIFT (ON/OFF KEY) + FOUR. The indicator **P** will appear at the bottom of the screen.

2) Press the platform continuously and then proceed to slow down or stop. Notice that the weight is now locked on the screen. This is the Peak Weight shown on the screen within the 2 second timeframe.

3) To release the weight, press SHIFT + FOUR again and the weight will go back to normal weighing mode.

4) To engage Peak Weight Hold mode, repeat from Step 1.

24 SPECIFICATIONS

The following are specifications for various scales that Arlyn Scales offers.

Model	Capacity	Resolution	Platform Size
620V/820V	5lb / 2.2kg	0.001lb \ 0.0005kg	12" x 16"
620X/820X	10lb / 4.5kg	0.002lb \ 0.001kg	12" x 16"
620T/820T	25lb / 11kg	0.005lb \ 0.002kg	12" x 16"
620L/820L	50lb / 22kg	0.01lb \ 0.005kg	12" x 16"
620C/820C	100lb / 45kg	0.02lb \ 0.01kg	12" x 16"
620F/820F	150lb / 67kg	0.05lb \ 0.02kg	12" x 16"
620G	300lb / 136kg	0.1lb \ 0.05kg	9.25" x 9.25" (or 14" x 14")
320D	500lb / 226kg	0.1lb \ 0.05kg	20" x 27" (Other sizes avail.)
320M	1,000lb / 453kg	0.2lb \ 0.1kg	20" x 27" (Other sizes avail.)
5-4405	5,000lb / 2260kg	1lb \ 0.5kg	4' x 4' (Other sizes avail.)
5-4410	10,000lb / 4536kg	2lb \ 1kg	5' x 7' (Other sizes avail.)
5-4420	20,000lb / 9072kg	5lb \ 2kg	7' x 9' (Other sizes avail.)

Power Requirements	117VAC +/- 10% 50/60 Hz (or 24VDC if equipped)
Accuracy	0.1% of full scale
Leveling	Adjustable
Tare Range/Zero Range	100% Full scale
Electronics	All circuitry incorporated on one plug in board
Display	MKE-5 LCD Graphics Display (or Arlyn UpScale Touchscreen 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 / -10C to 40C
Construction	Models 620 & 820-Stainless steel platform cover, aluminum construction. 5-4405-Diamond plate steel. Aluminum or stainless steel is optional. Model 320 aluminum. Stainless steel is optional.
Load Cell	Stainless steel construction for reliability (most models)
Controls	Units conversion, Net/Gross, Tare, Zero with secondary functions
Overall Dimensions	13"W x 16"D x 1.5"H (620/820), 20"W x 27"D x 1.5H (320), Depends on model ordered (5-4405)
Shipping Weight	21 lbs. (620/820), 30 lbs. (320), Depends on model ordered (5-4405)
Options Available	Battery pack, Setpoints, USB Remote display, RS232 Interface, Time and date, Weight average and hold, Multi-platform, Analog Output, Ethernet, Wireless Ethernet, USB Flash Data Logger

25 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.

26 REVISION HISTORY

DATE	REVISION	CHANGE
7/17/2017	V12.0.071717	- Changed Logo and Address font - Changed overall fonts to conform with other Arlyn Manuals. - Upgraded Menu items to reflect new/modified options in v12 firmware.
1/8/2018	V12.0.010818	- Added notes on support for additional Setpoint Definitions.
4/27/2018	V12.0.042718	- Added notes about platform legs, Multiplatform considerations and SAW Status screen.
5/30/2018	V12.0.053018	- Simplified Span Calibration Section
10/14/2020	V12.0.101420	- Formatted with Bullet Numbered list for easy navigation - Fixed setpoint output configuration (renumbered GND pin) - Added RS-232 pinout - Added Quick Tare function - Upgraded new connection diagram for Load Cell connector
01/11/2022	V12.0.011122	- Added Key Wedge section
03/13/2023	V12.0.031323	- Added Peak Weight Hold Section
04/18/2023	V12.0.041823	- Added some clarifications on Multiplatform section - Added Multi-channel analog output section.
10/02/2023	V12.0.100223	- Added Platform Leveling legs clarification
05/13/2025	V12.1.051325	- Added Setpoint Tutorial