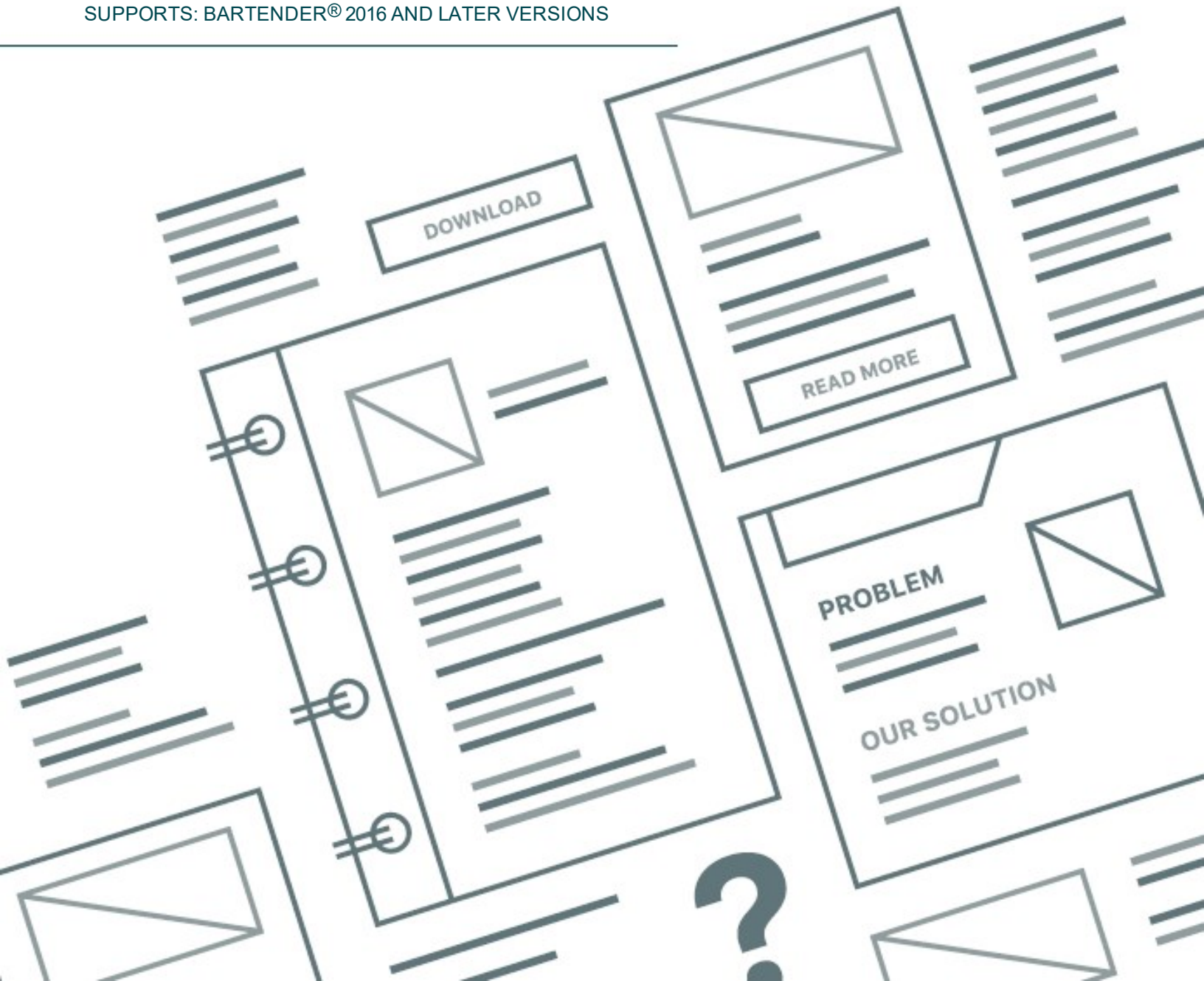
BarTender®
BY SEAGULL SCIENTIFIC

Technical Document
English

Weighing Scales

INSTALLING SCALES AND USING THEM WITH BARTENDER® DATA ENTRY FORMS

SUPPORTS: BARTENDER® 2016 AND LATER VERSIONS



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Overview

A *weighing scale* is a hardware device that is used to determine the weight of objects. Scales are commonly used in production and industrial environments, because many retail products are sold based on the net weight of the object.

You can connect your weighing scale to BarTender to capture and print the weight of objects on a BarTender document. You don't have to physically see the scale to capture and print weight; the actual weighing of objects can be done by someone else. Instead, you can add an interactive visual representation of the scale, called a *scale display control*, to a data entry form in your BarTender document. The scale display control shows the weight that is currently measured by the scale. The control is connected to an object on your template in which the weight is printed.

At print time, the scale display control captures the measured weight and then inserts it into the template object that is linked to the control. You can customize the capture-and-print process to meet your company's needs. For example, if you have a high-volume business that weighs many products per day in a remote warehouse, you can configure BarTender to capture and print the weight automatically each time that a stable weight is detected. If you run a small business and you weigh each item by hand, you can capture the weight manually and then print the item when you are satisfied with it.

Setting Up Your Weighing Scale

To use a scale, you first have to install it and connect it to BarTender. Depending on what type of scale it is, you might need to further configure it to work with BarTender.

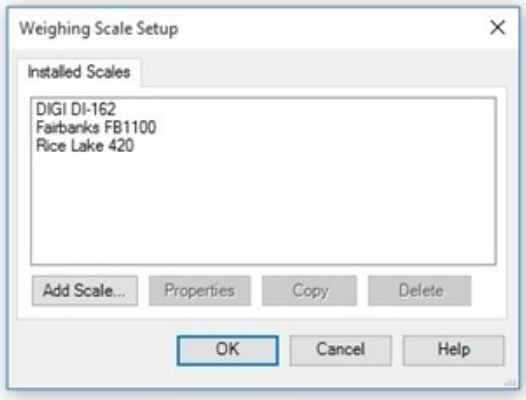
BarTender contains several predefined configurations for specific scale manufacturers and models, and you can easily select one of these natively supported models by using the Add Scale wizard. Some scales, however, need more configuration, as in the following situations:

- Your scale's manufacturer is natively supported but the model is not.
- Your scale's manufacturer is not natively supported.

The Add Scale wizard provides additional support to help you configure your scale to work with BarTender in either of these situations.

Weighing Scale Setup Dialog

Use the **Weighing Scale Setup** dialog to select and configure as many scales as you need.



If you have not installed any scales, the Add Scale wizard starts when you first try to open the **Weighing Scale Setup** dialog. After you use the wizard to install at least one scale, the **Weighing Scale Setup** dialog displays an **Installed Scales** tab that is populated with the names of the scales that you have installed and configured.

To use the scale as a data source for a data entry form, make sure that it is installed correctly and appears in this list.

For more information, refer to the Weighing Scale Setup Dialog topic in the BarTender help system.

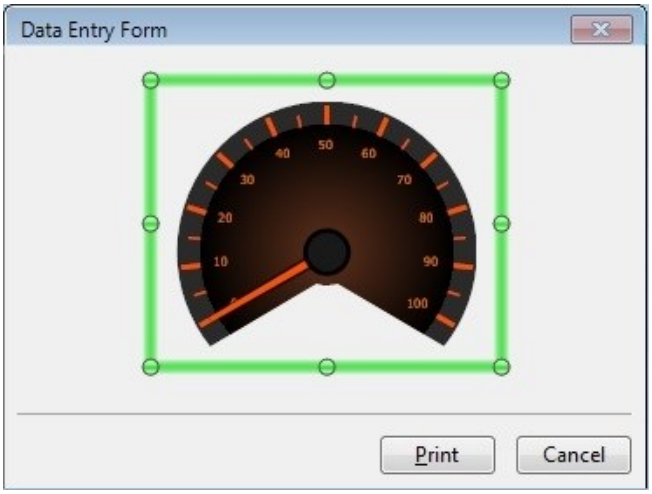
BarTender supports many scale manufacturers and models. For a list of natively supported manufacturers and for instructions about how to find out whether your scale model is supported, refer to Appendix A: Scales that BarTender Natively Supports. If your scale is not supported, refer to Appendix C: Working With Unsupported Scales.

Reading Weight Data into BarTender

Weight data is read into BarTender from the physical scale, and that data is displayed on a *scale display control* that you add to a data entry form.

Adding a Scale Display Control to the Form

After you connect your scale to BarTender and configure it to communicate with the software, you can add a visual representation of the scale to a data entry form in your BarTender document. This visual representation, called a scale display control, is an interactive scale that displays the weight that is currently measured by the scale that is installed on your computer. You can link that weight data with text and barcode objects on your printed items. When BarTender runs the print job, the recorded weight is printed.



Setting the Weight Units

Your scale has its own native units, but you can use whatever units you want in your data entry forms. BarTender automatically converts your scale's data to the units that you want for your scale display and any subsequent data source value. To use this feature, select the option that you want from the **Weight Units** list on the **Scale** property page of the **Scale Display Properties** dialog.

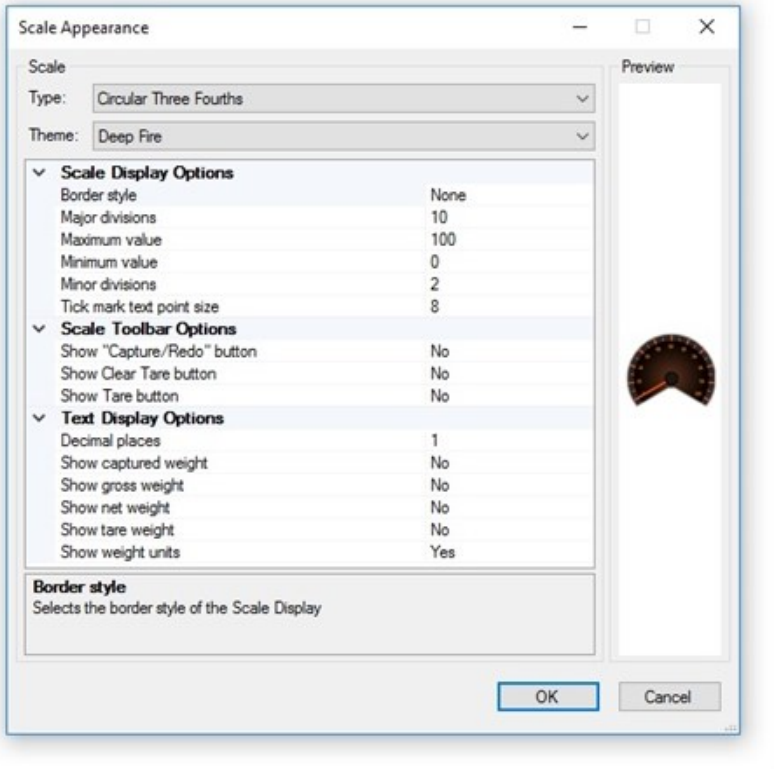
For more information about how to set the **Weight Units** option, refer to the Scale Property Page topic in the BarTender help system.

Enabling Automatic Weight Capture and Printing

You can use the **Scale Display Properties** dialog to configure the scale display control to automatically capture and print the weight. To do this, click to select both the **Capture stable weight automatically** and **Print after capture** options. For more information, refer to the Capturing and Printing a Weight chapter of this technical document.

Scale Display Control Appearance

You can configure how the scale display looks and behaves onscreen by using the **Scale Appearance** dialog. To access this dialog, click to the right of the **Appearance** field in the **Scale Display Properties** dialog.



You can choose between an analog or digital scale image or change the color theme of your control.

The **Display Options** section specifies advanced appearance settings, as follows:

- **Scale Display Options** include border style, divisions, minimum and maximum values, and tick mark settings.
- **Scale Toolbar Options** show or hide the control buttons that appear on your scale display at print time.
- **Text Display Options** include decimal place settings and whether to show different types of weight readings.

Showing Control Buttons

Use the **Scale Appearance** dialog to display **Capture/Redo**, **Tare**, and **Clear Tare** buttons for use at print time.

- The **Capture/Redo** button gives you the option to manually capture the weight before printing and to recapture the weight if you are not satisfied with the reading. For more information, refer to Manually Capturing the Weight in the "Capturing and Printing the Weight" chapter of this technical document.
- The **Tare** and **Clear Tare** buttons give you the option to manually capture and clear the tare weight (the weight of the empty packaging) before printing. For more information, refer to the Setting Tare Options chapter of this technical document.

For more information about how to configure the appearance of your scale display control, refer to the Scale Appearance Dialog topic in the BarTender help system.

Connecting to a Data Source

To print scale data on your items, you must link the scale display control to an object or data source on your template. You can link any or all of the following types of scale data to objects on your template:

- **Net Weight**: The weight of only the product, minus any packaging materials.
- **Gross Weight**: The weight of a product together with the packaging materials and the container.
- **Tare Weight**: The weight of an empty container.

For more information, refer to the Importing Data from a Scale topic in the BarTender help system.

Testing the Connection

To test the scale's connection to BarTender and to verify that your scale display control is set up correctly, click **Start Test** on the **Scale** property page of the **Scale Display Properties** dialog. If BarTender successfully connects to the scale, it displays the received weight value in the scale preview area. Otherwise, the scale preview area displays a text message that notifies you of the failed attempt to communicate with the scale.

Setting Tare Options

The tare weight is the weight that you subtract from the gross weight to account for containers and packaging so that you can accurately calculate the net weight. "Tare" is also used to describe the process of setting the zero point of the scale. BarTender supports any combination of the following methods to control tare functions.

Taring the Scale by Using Its Front Panel

If you need to tare the scale, you can use the scale's built-in tare controls. This is often done by placing an empty shipping container on the scale and pushing a button on the scale's front panel. If an object will be weighed without packaging, you tare the scale without anything on it.

Using the Tare or Clear Tare button on the toolbar

If you make the **Tare** and **Clear Tare** buttons available in the **Scale Appearance** dialog, those buttons are available underneath the scale display on your data entry form. You can use the scale display's **Tare** button instead of the button on your scale's front panel.

For more information, refer to the Scale Appearance Dialog topic in the BarTender help system.

To use the **Tare** button, put the empty packaging on the scale, and then click 0.0 **Tare**. The tare weight is captured and will continue to be displayed until you click 0.0 **Clear Tare** or click **Tare** again to capture a new tare weight.

Using the Tare Weight as a Data Source

If your physical scale does not display tare weight but you know the tare weight of a product in advance, you can link the tare weight to the **Input Tare Weight** property on the **Linked Data Source** property page of the **Scale Display Properties** dialog.

For more information, refer to the Linked Data Source Property Page topic in the BarTender help system.

Capturing and Printing a Weight

With most data entry controls, you enter the data that you want to include on your printed items. With scale controls, the scale enters the data for you.

You can choose to review the scale data on the screen and then print it manually, or you can configure BarTender to print automatically when a stable weight is captured. Both options require that a stable weight is captured before it can be printed. For more information, refer to the Capturing and Printing the Weight topic in the BarTender help system.

> Before you can print a weight, you must link the scale display control on the form to a data source that is defined in the BarTender document template.

There are two ways to capture the weight: by manually clicking the **Capture** button or by configuring BarTender to automatically detect a stable weight.

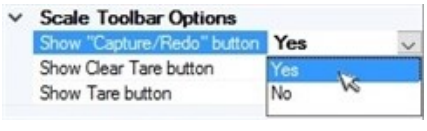
Manually Capturing the Weight

This method gives you the option of capturing the weight on the scale before you print. If the captured weight is not accurate, you can redo the capture. To use this method, use the **Scale Appearance** dialog to make the **Capture/Redo** button available.

The **Capture** button appears at the bottom of the scale display. When you are satisfied with the reading on the scale display, click **Capture**. The weight is copied to the linked data source, and the **Capture** button changes into a **Redo** button.

If you want to recapture the weight, click **Redo**. The **Redo** button changes back into a **Capture** button so that you can capture the weight again.

When you click **Capture**, a static weight value is placed into a linked data source, but the scale display continues to show a live reading from the scale. This means that the displayed weight value and the value that is placed into the linked data source



might not be identical. You can eliminate this potential confusion by using the **Show Captured Weight** option in the **Text Display Options** area of the **Scale Appearance** dialog.

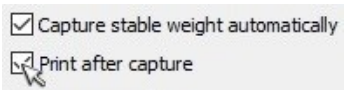
This option causes a string of text (Captured Weight: 0.0 g) to appear under the scale display, which shows the captured weight value that is placed into the linked data source when you click **Capture**.

For more information, refer to the Scale Appearance Dialog topic in the BarTender help system.

Automatically Capturing and Printing a Stable Weight

The factors that determine whether a weight is stable depend on the capabilities of your scale and on the setting of the **Stable Weight Control Method** option on the **Advanced** tab of the **Scale Properties** dialog.

For more information, refer to the Scale Properties Dialog topic in the BarTender help system.



We recommend that you also enable the **Capture/Redo** button as described previously so that you can manually recapture the weight if necessary. As always, if the weight is not yet captured when you click **Print**, it is automatically captured at that time.

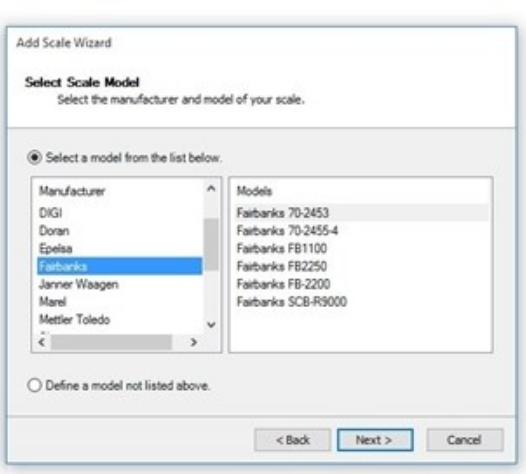
Appendix A: Scales that BarTender Natively Supports

BarTender can connect to scale models from the following scale manufacturers:

- A&D
- Adam Equipment
- Dibal
- DIGI
- Doran
- Epelsa
- Fairbanks
- Janner Waagen
- Marel
- Mettler Toledo
- Ohaus
- Pennsylvania
- RADWAG
- Rice Lake
- Scanvaegt
- Soehnle
- SysTec

To find out whether your model is supported, follow these steps:

1. In BarTender, click **Weighing Scale Setup** on the **Administer** menu.
2. Click **Add Scale** to start the Add Scale wizard.
3. Click **Next**.
4. In the **Manufacturer** list, select your scale's manufacturer. Supported models appear in the **Models** list to the right.



For more information about how to configure your scale, refer to the Weighing Scale Configuration topic in the BarTender help system.

Appendix B: Manufacturer-Specific Setup Guidance

BarTender offers specific guidelines for certain scale manufacturers.

Manufacturer	Guidelines
Fairbanks	BarTender uses the "Fairbanks UPS Output" protocol to communicate with the Fairbanks scales. By using this protocol, the scale returns the data in the predefined format when it receives the **<CR>** command. To configure the scale to use this protocol, set the Print Function (Pr.F) menu item to **Poll**. Configure the serial port settings to match the serial port settings on the computer. Some models, such as the 2455 Series, have fixed serial settings (9600 Baud, 7 Bits, Odd Parity, 2 Stop Bits). Configure the serial port settings on the computer accordingly.
Mettler Toledo (IND560 and similar models)	BarTender uses the "MT-SICS (Level 1)" protocol to communicate with the Mettler Toledo scales. To configure the scale to use this protocol, you must set the **Setup** > **Communications** > **Connections** > **COM**option to **SICS**.
Mettler Toledo (PS60 and similar models)	Some older Toledo scales, such as the PS60, do not support the "MT-SICS (Level 1)" protocol. For these models, BarTender uses the “Toledo Scale Protocol,” which uses the **L** command to retrieve the weight value from the scale.
Ohaus (Adventurer Pro and similar models)	BarTender uses the “Ohaus Adventurer Pro” protocol to communicate with these models, which uses the **IP** and/or **SP** commands to retrieve the weight data. For this protocol to work, configure the scale in the "Command/Response" mode.
Ohaus (3000 Series and similar models)	BarTender uses the “Ohaus 3000 Series” protocol to communicate with these models. To configure the scale to use this protocol, set the **PRINT** > **A.PRINT** menu item to **OFF**. The menu structure for different Ohaus scales may differ. The main consideration is that the scale should be configured so that it does not continuously send unsolicited data to BarTender.
Ohaus (All supported models)	The data output format for Ohaus scales is highly configurable. On most models, the format is configured in the **CONTENT** menu. The returned weight format should be only the numeric weight value followed by the units (for example, 54.6 lb). The header information, if available on the model, should be turned off. BarTender does not support the built-in tare feature on the Ohaus scales due to uncertainty in the response format. Instead, use the BarTender emulated tare feature. Use the **CONTENT** menu to configure the scale to return the gross weight.
Rice Lake (520 and similar models)	BarTender uses the EDP Commands to communicate with most Rice Lake scales. For this protocol to work, set **STREAM CONTINUOUS PORT** to **OFF**. For the Rice Lake 520 and similar models, you can find this setting in the **CONFIGURATION** > **SERIAL COMMUNICATIONS** > **EDP COMM PORT** menu.
Rice Lake (TP Series and similar models)	The Rice Lake TP series and similar scales support a different protocol. BarTender requests weight data by using the **C1 C2 <CR> <LF>** command format as specified in the scale's manual. There are no special setup requirements for these scales except to make sure that the serial port settings match the computer's serial port settings.

Appendix C: Working with Unsupported Scales

Different scale models from the same manufacturer often use compatible communication protocols, which are the rules by which two or more entities (such as your scale and BarTender) can exchange information. Therefore, if your scale model is not listed in the Add Scale wizard but BarTender supports other models from the same manufacturer, there is a good chance that BarTender does support your scale's protocol. You can refer to your scale's manual or speak to a representative of the scale manufacturer to determine whether your scale is compatible with any of the models in the list.

Even if the scale's manufacturer is not natively supported, BarTender might be able to work with your scale. To do this, you must define a custom protocol that tells BarTender how to communicate with the scale. Be aware that to define a custom scale protocol requires advanced, detailed knowledge of the communication syntax for your scale and a detailed understanding of regular expressions.

For more information about how to define protocols, refer to the following topics in the BarTender help system:

- Understanding Scale Protocols
- User-Defined Model Properties Dialog
- User-Defined Protocol Properties Dialog

Using Regular Expressions in Custom Protocols

BarTender supports only the "Command/Response" methodology to communicate with the scale. This means that BarTender polls the scale at a regular interval to request weight data, and the scale is expected to respond with the requested weight data within a reasonable amount of time.

Many scales can be configured to continuously send data to the computer; however, BarTender does not support this unsolicited data-streaming mode. When multiple data modes are supported, the scale must be configured at the front panel to the "Command/Response" mode before it can be used with BarTender. For more information, refer to the Configuring Your Scale Hardware topic in the BarTender help system.

Some scales can be configured to suppress the weight units in the returned weight data. For BarTender to work correctly, the weight units must not be suppressed.

BarTender uses the following commands:

- Request Immediate Weight
- Request Stable Weight
- Tare
- Get Tare Weight
- Clear Tare Weight

At a minimum, BarTender requires the scale to support either the "Request Immediate Weight" or the "Request Stable Weight" command. The other commands are optional. BarTender can emulate stable weight and tare features in software if it is configured correctly.

For BarTender to support the scale's built-in tare feature, the scale must support the "Tare" and "Get Tare Weight" commands. Also, the scale must have a response format so that BarTender can distinguish the tare weight from the net weight. We have found that some scales are inadequate in the response format, so the built-in tare feature cannot be supported.

The response pattern must use regular expression syntax. A regular expression (also called RegEx or RegExp) is a sequence of characters that forms a search pattern. For more information, refer to the following topics in the BarTender help system:

- Regular Expression Examples
- Field Names Used in Regular Expressions

Related Documentation

Technical Documents

- *Optimizing Print Performance*
- *Status Monitoring*
- *Revision Control*

To view and download technical documents, visit:

https://www.seagullscientific.com/resources/white-papers/

User Guides

- Getting Started with BarTender
  https://support.seagullscientific.com/hc/categories/200267887

BarTender Help System

- Using Scales for Data Entry
- Importing Data from a Scale
- Capturing and Printing the Weight
- Configuring Your Scale Hardware
- Understanding Scale Protocols

Other Resources

Please visit the BarTender website at *https://www.seagullscientific.com*.

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