BeeVision 272 Dimensioner Software Guide

C Contents

1 Overview

This document describes the usage of Volumizer™ software that is provided within BeeVision™ dimensioners.

BeeVision dimensioners are installed with Volumizer™ software that enables users to easily control, self-calibrate the device, perform measurements and share results with the user's system. Users can use the BeeVision Dimensioners with Volumizer-GUI available on an attached monitor or with Volumizer-WebUI from their browser on their PC, tablet or smart-phone.

With Volumizer-API, users can remotely control their dimensioner and seamlessly integrate it into their software infrastructure.

2 Starting Volumizer

When the power cord is inserted into the power port of the BeeVision dimensioner and given mains voltage, the BeeVision dimensioner is automatically turned on and Volumizer software will be ready for use.

To connect the BeeVision dimensioner to a computer or a local network for data transfer, simply use an Ethernet cable or Wi-Fi depending on the model.

If a monitor is not already provided within your product, to view the results of measurements and device settings on a monitor, just connect one end of any standard HDMI male-to-male cable to the HDMI port of the device and the other end to the monitor. If you use a touch-screen monitor, connect the USB cable to one of the USB 3.0 ports on the device for enabling touch operation. After connecting the cable for the first time, you may need to restart the device depending on the driver of the touch-screen monitor. If you have problems using the touch-screen, get in touch with the BeeVision support team.

⚠ The mouse cursor is by default hidden in Volumizer UI. If you would like to connect a mouse and a keyboard, you can enable/disable mouse cursor by pressing **Ctrl+Shift+M** combination on your keyboard.

To turn off the device, simply unplug the power cord.

⚠ BeeVision starts in headless mode when no monitor is attached and the device can only be controlled via Volumizer-WebUI or Volumizer API web services. To bring up Volumizer GUI, connect a monitor and reboot the device.

3 Volumizer

Volumizer is the software installed in the BeeVision dimensioners that enables users to control the device, perform calibration and measurements. It has a graphical user interface (GUI) that can be used when the BeeVision dimensioner is connected to a monitor. It also has a web-based user interface (WebUI) that can be accessed from a browser with the following address: http://*IP_address_of_device.* As fallback solution, users can also use the following address: *http://IP_address_of_device:27018*

Users can navigate to pages from the main menu as shown in FIGURE 1 and FIGURE 2.

FIGURE 1: MAIN MENU OF VOLUMIZER GUI

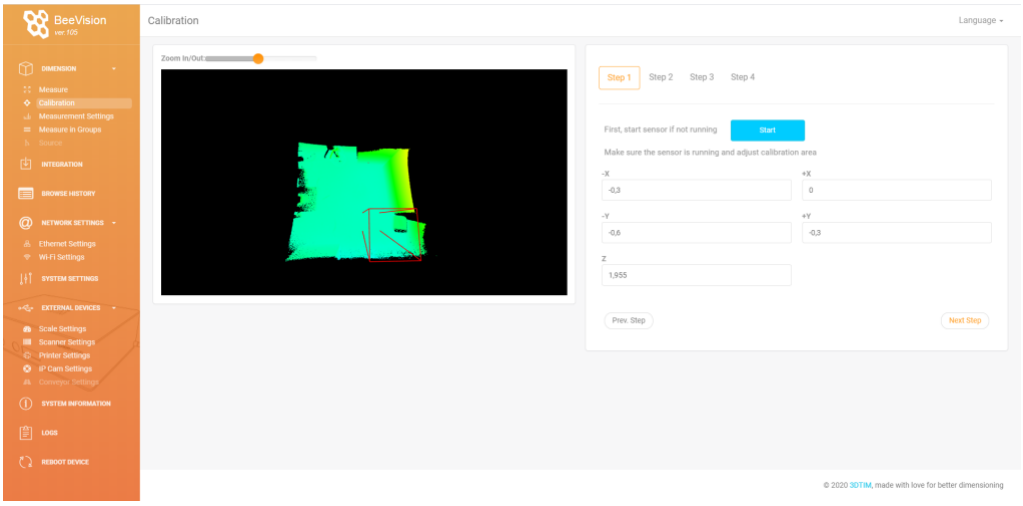


FIGURE 2: VOLUMIZER WEBUI

Following pages are included in Volumizer GUI and WebUI:

Dimension	Brings up dimensioning submenu
Measure	Trigger measurement and display results
Calibration	Perform calibration and view 3D, 2D and model data

 Measurement Settings	Change measurement settings
 Measurement in Groups	Perform measurements in groups and save results to a remote address as an XML file per group
 Source	Merge 3D data with a slave, remote BeeVision device
 Decode	Brings up barcode decoding submenu (disabled in dimensioners)
 Integration	Change result sharing options
 Network Settings	Change Ethernet and Wi-Fi settings
 System Settings	Change system settings such as language, time, date and device operation mode
 External Devices	Brings up external devices submenu

 Scale Settings	Change scale connection settings
 Scanner Settings	Change handheld and fixed-mount barcode scanner connection settings
 Printer Settings	Change label printer settings
 Conveyor Settings	Change conveyor and PLC connection settings (might be disabled based on the model)
 Ip Cam Settings	Change IP camera settings (might be disabled based on the model)
 Browse History	Browse previous measurement results
	

System Information	View information about the system such as model name, certification status, SW checksum, etc.
 Reboot	Restarts the device
 Logs	View system log , activity log and parameter change log

GUI Navigation Icons:

Opens up the previous upper menu page

Opens up the main menu page

The functions of the pages are described in detail in the following sections.

Dimension Page

On the Dimension page, users can navigate to 5 sub-pages: Measure, Calibration, Measurement Settings, Measure in Groups, and Source pages.

a. Measure Page

Measure page is used for performing measurements and viewing results. **"Measure" button** triggers measurement and width, length, height, dimensional weight, real volume (if enabled in "Measurement Settings") and weight information (left empty if no scale is connected) are calculated and displayed.

"Clear" button only removes the values on the display and has no effect on calibration data or anything else.

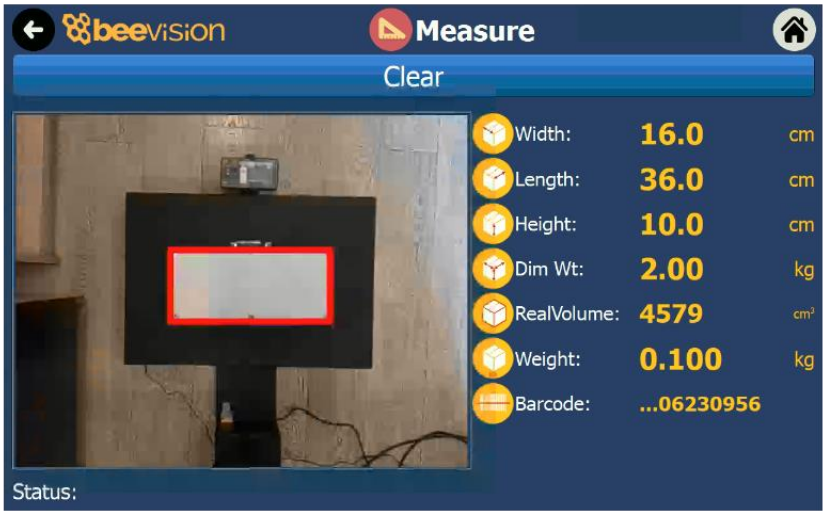


FIGURE 3: MEASURE PAGE IN VOLUMIZER GUI

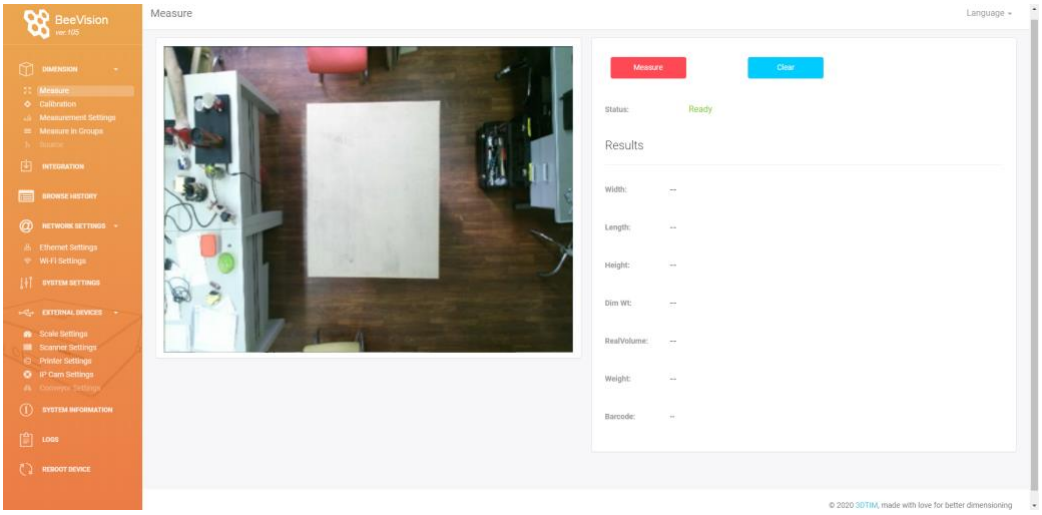


FIGURE 4: MEASURE PAGE IN WEBUI

Dim Wt (dimensional weight) value depends on the dimensional weight divisor (coefficient) that is set in the "Measurement Settings" page. It is calculated as the result of Width x Length x Height value, divided by the divisor. If the "Hide international-domestic selection" option is disabled in the "Measurement Settings" page, two different divisors can be selected dynamically before the measurement via **"Domestic or International" selection** in the "Measure Page". The selection is disabled by default.

Volume value is an approximation of true volume (as opposed to the bounding box volume) that an object occupies in 3D space and its calculation is illustrated in FIGURE 5.

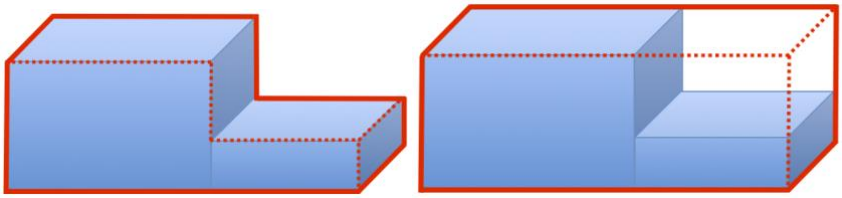


FIGURE 5: REAL VOLUME CALCULATION VS DIMWEIGHT VOLUME CALCULATION

Calibration Page

The Calibration page is used for performing the calibration of the device. Users need to enter the 4-digit admin password to be able to make changes on this page. There should be no object in the measurement area when performing calibration steps.

If the device is sealed for the certification, calibration cannot be performed. Only the measurement area in Step-3 can be changed in X and Y directions.

BeeVision 272 dimensioning system is not delivered as precalibrated. The calibration process should be done after the device is installed at its final location. For calibration, a cube with a size of 300 x 300 x 300 mm are provided. Follow the instructions below to perform the calibration:

Step 1: In the main menu, navigate to the “Dimension” submenu, and press the “Calibration” button. Crudely select the measurement area using (+) and (-) buttons. If there is a scale, you should select the scale and not include the floor. Make sure the selected area is clearly smaller than the measurement surface area (scale surface). Go to Step 2.

Step 2: Remove any objects from the calibration area defined in the previous step and press the Calibrate button. Measurement surface is detected and indicated in white color. Then, go to the next step.

Step 3: Define the measurement area finely using (+) and (-) buttons. Make sure the measurement area exceeds the scale surface from all dimensions and go to next step.

Step 4: Place the calibration cube of 300 x 300 x 300 mm dimensions in the middle of the measurement area. Click the Refine Calibration button. When the process is completed, press “Measure” button to measure the cube and check the results to be within ±0.5cm tolerance. If the height is not within tolerance, please go back to Step 2and refine the distance to the measurement surface manually and come back to this step and re-measure. Do not forget to click on “Save Calibration” button when done.

FIGURE 6: CALIBRATION PAGE IN VOLUMIZER UI

⚠ Make sure that there is no object in the measurement area while performing the calibration. Plus, make sure you select the calibration and measurement areas from the surface where objects are placed upon (for example pick the scale surface if a scale is used)

Status Messages:

- **Calibration failed. Try again:** Indicates there is no sufficient planar surface in the calibration area set in the Step-1. Make sure that there is no object in the calibration area during the calibration.

b. Measurement Settings Page

Settings related to dimension measurement can be changed on this page. It includes 3 tabs: Features, Dimension Limits, and Manual Parameter.

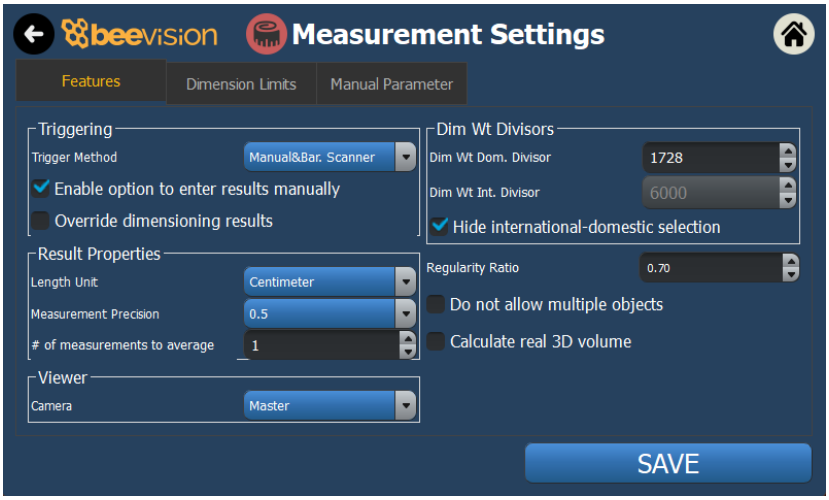


FIGURE 7: MEASUREMENT SETTINGS PAGE IN VOLUMIZER UI

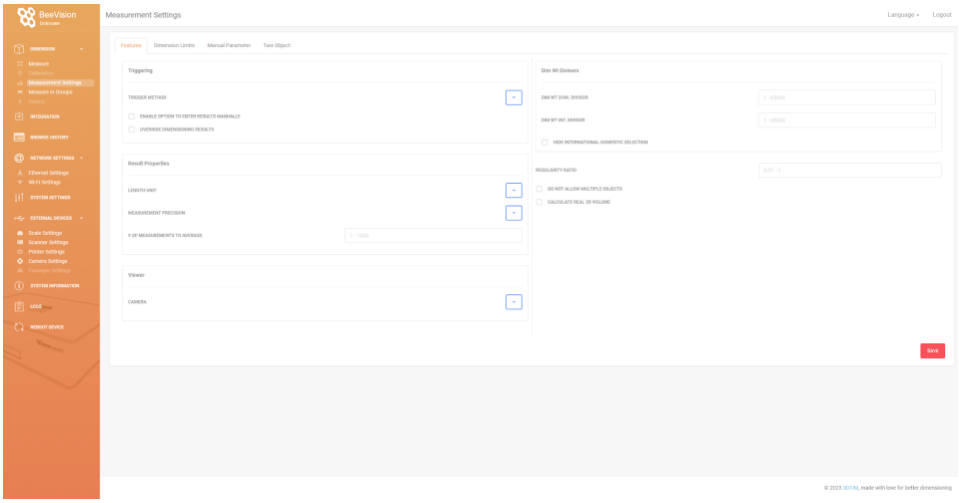


FIGURE 8: MEASUREMENT SETTINGS PAGE IN WEBUI

Features

Trigger Method: Selects the trigger method out of 5 available options: Manual, Barcode Scanner, Automatic, Manual & Barcode Scanner, Scale.

Manual: Measurements can be triggered via Measure buttons in Volumizer-GUI and Volumizer-WebUI or through Volumizer-API with measure commands.

Barcode Scanner: Measurements can be triggered via an attached USB barcode scanner. Once a barcode is successfully decoded via scanner, measurement is performed. A delay can be set in Barcode Scanner Settings Page to give the operator time to move out of the measurement area. Results can be shared with a remote listener web server when the corresponding option is enabled in the System Settings page ("Send results to a remote web server" option).

Automatic: Non-stop measurement mode. Every object in the measurement area is automatically measured. This way users do not need to press the measure button in the GUI. Results can be shared with a remote listener web server when the corresponding option is enabled in the System Settings page ("Send results to a remote web server" option).

Manual & Bar. Scanner: Manual and Barcode Scanner triggering can be used at the same time.

Scale: When a new object is placed on the connected scale, a measurement is triggered. To be able to use scale triggering, a scale connection must be established and scale value must return to 0 when there is no object.

Enable option to enter results manually: When checked, users can bypass measurement and enter dimension results manually. This feature is supported only when automatic triggering is not selected. Manual result entry is particularly useful if an object has too small or too large dimensions and cannot be measured with the BeeVision dimensioner due to the object size limitations. This feature is not supported when the device is sealed for certification purposes.

Override dimensioning results: When checked, width, length, height volume and dim weight results of the object will be ignored and replaced with 0. Only weight and barcode data are captured. If dimension information is irrelevant, users can enable this option and it may be particularly useful with dynamic dimensioning systems. This feature is not supported when the device is sealed for certification purposes.

Measurement Unit: Select the measurement unit: either centimeter or inch. The unit cannot be changed when the device is sealed for certification purposes.

Measurement Precision: Select the precision of the measurement result: 0.1, 0.2, 0.5, 1, 2 centimeters or inch depending on the Length unit selection. Precision setting cannot be changed when the device is sealed for certification purposes. Recommended precision for parcel dimensioning is 0.5cm (or 0.2inch) and for pallet dimensioning it is 2cm (or 1inch).

# of frames to average: The number of measurements to be averaged can be adjusted here. A single result is created after a specified number of measurements are performed and their results are averaged. This setting cannot be changed when the device is sealed for certification.

⚠ Increasing the "number of frames to average" parameter improves the repeatability of the measurement results with the cost of measurement time. Setting a high value may slow down the measurement significantly.

Camera: Users have the option to designate the camera they wish to display on the screen as the chosen viewing camera.

Do not allow multiple objects: When checked, the device will not perform measurements if there are more than one objects in the measurement area. The device can recognize two or more objects, only if it can detect space in between. When unchecked, Volumizer picks the object that is closest to the center of the field of view of the dimensioner. This setting cannot be changed when the device is sealed for certification.

Calculate real 3D volume: When checked, 3D volume calculation is enabled and the top surface of the object is reconstructed in 3D to calculate the real volume of the object. The reconstructed surface can be seen in the "Model" viewer in the "Calibration" page. When unchecked, the "Volume" label disappears in the "Measure" page.

⚠ Real 3D volume calculation requires extra time. If you are measuring large objects, this time may be significant. If you do

not need real volume data, you can disable this option to speed up the measurements.

Dim Wt Dom./Int. Divisors: Dim Wt (dimensional weight) value seen on the "Measure" page, "Calibration" page or in the "Group Measurement" page is calculated as the result of the multiplication of width x length x height, divided by the domestic or international divisor. The divisors are set here.

Hide international-domestic selection: When enabled, international and domestic selection options are not shown in "Measure Page" to prevent confusion if the selection is not needed. In this case, the domestic coefficient is used for dim weight calculation.

Regularity Ratio: This setting is used to determine whether an object is regular or not. Users may need to take a particular action when an item is irregular to prevent wrong invoicing. The Regularity ratio number is compared to the ratio of real volume / bounding box volume. If the calculated ratio is smaller than the ratio set here, the item is declared as an irregular object and the "IsRegular" flag in the measurement results is set to 0.

Dimension Limits

Max/Min Width/Length, Height (cm): These limitations must be defined if the user wants to prevent measurements of objects which have dimensions larger/smaller than the maximum/minimum limits. The device issues an error and does not make any measurements when one of the dimensions of the object is greater/smaller than the value that is set. This setting has to be enabled from the "Enable object dimension limits check" checkbox.

Check if object is completely in meas. area: When checked, the device checks whether any part of the object is out of the measurement area. If so, the measurement will not be performed. If this box is not checked, the measurement is performed with the part that is enclosed with the measurement area and illustrated in FIGURE 9. The result might not be correct depending on the shape that is left in the measurement area.

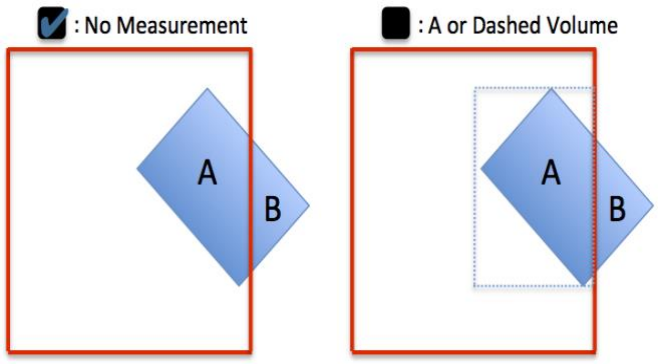


FIGURE 9: CHECK IF OBJECT IS COMPLETELY IN MEAS. AREA CHECKBOX OPERATION. THE RED BOX REPRESENTS THE MEASUREMENT AREA, BLUE REPRESENTS THE OBJECT. ONLY PART A IS IN THE MEASUREMENT AREA

Enable object dimension limits check: When checked, max and min dimensions of the object are compared to the limits set by the user. If results are out of the limits, results are not submitted or displayed; instead, a corresponding error message is shared.

Include pallet in measurement: When enabled, pallet dimensions are included in measurement.

Manual Parameter

Post-measurement parameter entry: Users may want to add additional info per measurement such as the inner-box count, an object-specific number, etc. When this option is enabled, operators are asked to enter additional information after a successful measurement. This additional data is saved in the measurement results database and also sent to the user within web-service.

Allow only numerical Entry: When this option is enabled, the post-measurement parameter can only take numerical values. A virtual numerical pad appears instead of a virtual keyboard.

Parameter name: Name of the post-measurement parameter. This name will be used in the XML files and web-service field to indicate the additional info entered by the user after a successful measurement. The following names are not permitted as they are already used: width, length, height, weight, barcode, date, time and also the other field names in the result API message sent to the user.

Post-measurement second parameter entry: Enable second additional parameter entry after the first one.

Allow only numerical second entry: When this option is enabled, the post-measurement second parameter can only take numerical values. A virtual numerical pad appears instead of a virtual keyboard.

Second parameter name: Name of the second post-measurement parameter. This name will be used in the XML files and web-service field to indicate the additional info entered by the user after a successful measurement. The following names are not permitted as they are already used: width, length, height, weight, barcode, date, time and also the other field names in the result API message sent to the user.

Post-measurement third parameter entry: Enable third additional parameter entry after the second one.

Allow only numerical third entry: When this option is enabled, the post-measurement third parameter can only take numerical values. A virtual numerical pad appears instead of a virtual keyboard.

Third parameter name: Name of the third post-measurement parameter. This name will be used in the XML files and web-service field to indicate the additional info entered by the user after a successful measurement. The following names are not permitted as they are already used: width, length, height, weight, barcode, date, time and also the other field names in the result API message sent to the user.

Tare Object

Tare object feature may be used to measure too short objects. Users can define tare objects so that the height of the defined tare object acts negatively on the height measurement result. Different tare objects can be selected in "Measure" page.

For example, if a 5cm high and 20gr tare object is defined and selected in the "Measure" page by the user, the 5cm tare is subtracted from the measured height result and 20gr is also subtracted from the scale result. This way users can place a tare object under small objects to be able to measure them accurately.

⚠ If the BeeVision dimensioner is certified, the interval for the tare height is equal to the interval of the dimensioner. In other words, if the device is certified for +-5mm accuracy, the tare height can only be multiples of 5mm as well (5mm, 10mm, 15mm, etc).

c. Measure in Groups Page

Group Measurement function is used for grouping consecutive measurements and saving the results in a network address which is given from Integration Menu>Server Sharing tab and also locally in the device as a file with XML format (Microsoft Excel readable). Each group result is saved in a separate XML file. The name of the saved file includes the date, clock, and group ID (FIGURE 10). The content of the file includes width, length, height, weight, dimensional weights and, if applicable, the barcode of each freight and total dimensional weight of that group. BeeVision dimensioner keeps a copy of each group file in its internal disk. In case of data loss in a remote server, users can find a backup in the device.

FIGURE 10: GROUP MEASUREMENT PAGE IN VOLUMIZER UI

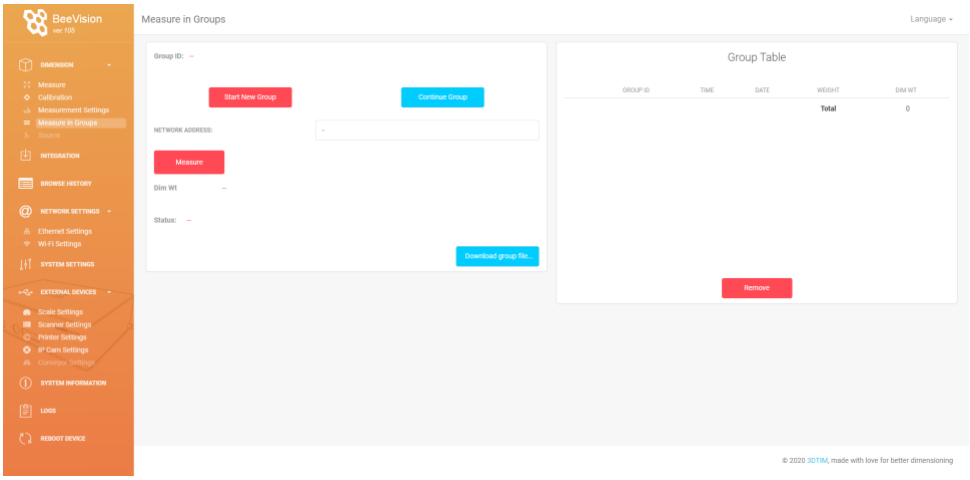


FIGURE 11: GROUP MEASUREMENT PAGE IN WEBUI

Start New Group: Starts a new group measurement. The user will be asked to enter a group ID when pressed. This could be a customer ID, address ID, etc.

Measure: Measures the dimensional weight of each freight. Information related to measured freights can be traced from the group table that is placed on the right side of the window.

End Group: Ends the current group measurement. When this button is pressed, the group data will be saved to the remote path provided with the 'Save group file as' button. An XML file with the following name format will be generated in the remote network address:

"Date_Time_Group-ID" → 24.01.2016_15:38:56_123.xml

The file includes width, length, height, weight, the dimensional weight of each measured freight, total freight number and summation of the dimensional weights.

Save group file as: Brings up a window to select the remote path in which group file will be saved.

> ⚠ BeeVision dimensioners do not support password-protected servers for saving group files. Please, provide a remote server path that allows the "**Guest**" login.

> ⚠ Depending on your connection and network, it may take a long time before Volumizer lists all available addresses in your network. Please be patient and wait until the search is complete.

Remove: Deletes the measurement that is selected in the group table. Wrong measurements can be removed this way.

Continue Group: Brings up a list of previous group files. Users can pick an old group measurement and continue or edit that group measurement. The previous group list is fetched from the device itself, i.e. not from the remote address provided with the "Save group file as" button.

Status Messages:

- **No Object:** Indicates there is no freight in the field of measurement.

> ⚠ If you receive this message even though an object is placed in the measurement area, first make sure that minimum object height is not too small, increase it to 9cm and try again.
>
> If the problem persists, check that no other object is visible in the measurement area. Unintended objects or their parts in the field of measurement may cause this error.

- **Object out of measurement area:** Indicates that some part of the freight placed under the device is outside of the measurement area that is set in the calibration tab (see CALIBRATION).

- **Dimensions too large/small:** Indicates that any dimension (width, length or height) of the freight to be measured is small or large according to the limits that are set in the settings tab.

- **Multiple objects in measurement area:** Indicates that there are two or more freights in which the device can recognize the space between.

⚠ BeeVision dimensioner issues this error when a cable, hand or any other object is also visible in the measurement area. Make sure that the object that you would like to measure is the only item in the measurement area.

- **Group ID is not set:** Start or continue a group: Appears on the group measurement tab when the user presses the Measure button without starting a new group or proceeding to a previous group.

- **Camera is not on:** Turn on camera: Indicates that the camera inside the device is not working. Just press the Start button on the calibration tab. If the problem continues, contact 3DTIM.

- **Could not connect to camera:** Indicates that the camera inside the device is not working. The device has to be restarted. If the problem continues, contact 3DTIM.

- **Pallet height included:** This message indicates that if the user disables the "Include Pallet in Measurement" option in the Measurement Settings menu and the software cannot detect a wooden/plastic pallet under the product, it will not be able to exclude the pallet from measurement. As a result, the pallet height will be included in the measurement. If the product does not a have pallet, this message will still appear if the "Include pallet in measurement" option is selected.

d. Integration Page

Data sharing features can be modified on this page. For measurement result sharing, 4 modes are supported: Web Service, File Sharing Download, Server Upload and RS232 as shown in Figure 12.

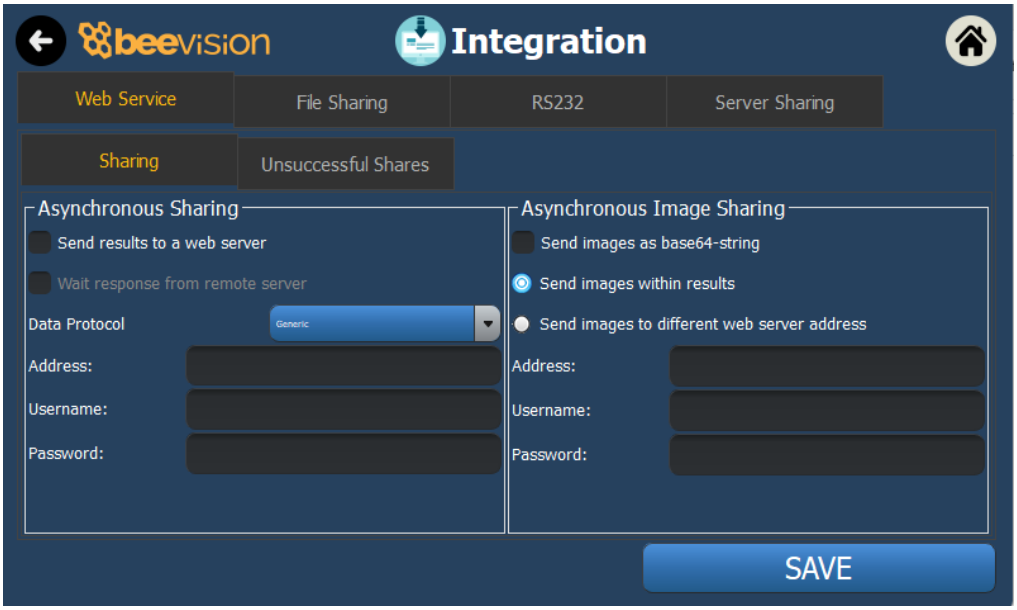


FIGURE 12: INTEGRATION PAGE IN VOLUMIZER UI

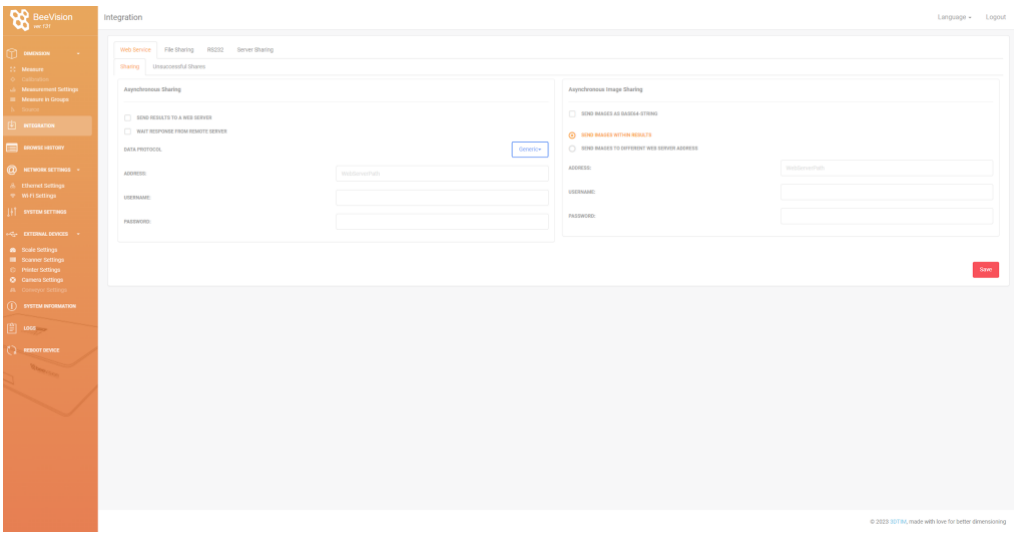


FIGURE 13: INTEGRATION PAGE IN WEBUI

Web Service

Sharing

Send results to a web server: This option is required when the results of the measurements should be shared with (posted to) a remote server in an asynchronous fashion. For example, when a measurement is triggered with a barcode scanner, results are automatically sent to the listening web server address defined here. In the continuous triggering mode, as the user does not trigger the measurement itself, results are sent to the webserver address whenever they are available.

Wait response from remote server: When this option is enabled, after sharing results with remote server Volumizer will wait for a response to proceed. Please wait dialog will appear when waiting for a response and the user will be informed about the status of the response. This option is only available when "Send results to a web server" option is enabled.

Address: Address of the listening service of the remote web server.

User Name: Basic authentication user name of the web service

Password: Basic authentication password of the web service

An HTTP POST request is called at the address defined below this option. Results are in JSON format and have the following keys and corresponding values:

StatusCode : <int>
StatusMessage : <string>
Width : <string>
Length: <string>
Height: <string>
DimWt: <string>
RealVolume: <string>
Weight: <string>
UnitID: <string>
BranchID: <string>
Barcode: <string>
BarcodeType: <string>
BarcodeSource: <string>
Date: <string>

Time: <string>
MeasurementID: <string>
ImageBase64: <string>
SerialNumber: <string>
DimUnit: <string>
WeightUnit: <string>
IsRegular: <int>
ObjectRGBCoordinates: <string>
Operator: <string>
Reserved1: <string>
CRC: <string>

Check Volumizer API Chapter for further details.

Send images as base64-string: Enable image sharing. There are 2 ways to get images: either within the results or as a separate request with a different address than results web-service.

Send images as base64-string within results: ImageBase64 field is populated with the object image encoded as base64 string; otherwise, it is left empty.

Send images to different web-service address: Send images to a different web service address, i.e. not in the results web-service. ImageBase64 field of the results data is left empty when this feature is selected.

When image is sent to a separate address, data format is as follows:

StatusCode: <int>
StatusMessage: <string>
Barcode: <string>
Date: <string>
Time:<string>
MeasurementID:<string>
ImageBase64: <string>
SerialNumber: <string>
CRC: <string>
ImageID: <int>

Send barcodes to server regardless of measurement: If measurement has failed but barcode reading is successful, barcode data is still sent to the remote server when this option is enabled.

Unsuccessful Shares

Total unsuccessful send attempts: BeeVision dimensioners keep track of data sharing status. If the remote server does not respond at the provided address, then the corresponding result share attempt is saved as a failed attempt. The number of failed attempts is shown here.

Auto retry unsuccessful send attempts daily: When this option is enabled, the device tries to re-send measurement results that could not be sent in the past at a designated time every day.

Retry unsuccessful send attempts: Manually retries to re-send measurement results right away.

Clear Unsuccessful Send Attempts Records: Resets unsuccessful data sharing records

Send Selected Measurements: Users may manually pick which measurement results should be sent to the remote server independent of whether they are previously sent or not.

File Sharing

Keep measurement records: When this option is enabled, every measurement result is saved in an XML file stored in the device. This file can be downloaded from WebUI to the user's computer or to a network drive or to a USB drive connected to the BeeVision dimensioner from GUI.

Save records to a USB drive: Shows the list of the USB drives connected to BeeVision Dimensioners USB ports. When one selected, measurement records can be saved to that USB drive. Users will be asked to select a time interval to download the results in that interval as shown in Figure 14.

Save records to a network address: Searches and shows the list of available drives in the same network as BeeVision Dimensioner. When a folder is selected, measurement records can be saved to that address. Users will be asked to select a time interval to download the results in that interval as shown in Figure 14.

⚠ If the BeeVision dimensioner is connected to a large network with many computers or when the speed of the connection is slow, searching available network drives may take a long time when clicked on "Save records to a network address..." and Volumizer

may seem frozen. In this case, please be patient and wait until the operation is complete.

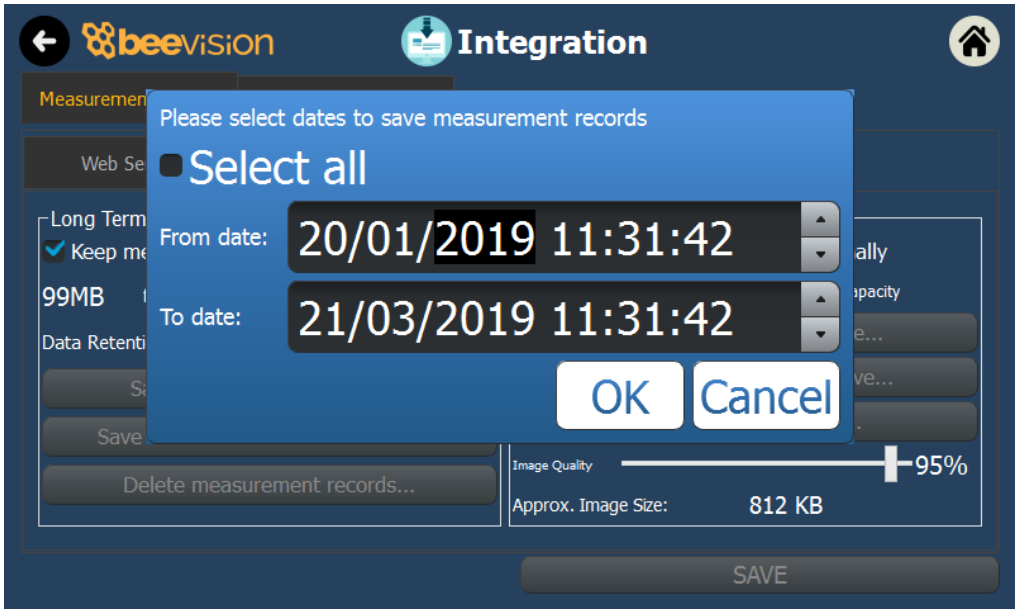


FIGURE 14: INTEGRATION PAGE FILE SHARING TAB

Delete measurement records: The user is asked to confirm deleting all existing measurement records. When accepted, records are deleted permanently.

Save measurement images internally: When enabled, measurement images are saved in the internal disk.

Crop object: When enabled, measurement images will be cropped to only include the object.

Save images to a USB drive: Shows the list of the USB drives connected to BeeVision Dimensioners USB ports. When one selected, measurement images can be saved to that USB drive. Users will be asked to select a time interval to download the images in that interval as shown in Figure 14. The naming scheme of the images are as follow:

If barcode exists: measurementID_barcode_.jpeg

Otherwise: measurementID_.jpeg

Save images to a network address: Searches and shows the list of available drives in the same network as BeeVision Dimensioner. When a folder is selected, measurement images can be saved to that address. Users will be

asked to select a time interval to download the images in that interval as shown in Figure 14.

> ⚠ If the BeeVision dimensioner is connected to a large network with many computers or when the speed of the connection is slow, searching available network drives may take a long time when clicked on "Save images to a network address..." and Volumizer may seem frozen. In this case, please be patient and wait until the operation is complete.

Delete existing images: The user is asked to confirm deleting all existing measurement images. When accepted, images are deleted permanently.

Image Quality: Image quality and size can be adjusted here. If the quality is increased, the approximate image size also increases.

RS232

Share results with RS232: When enabled results can be retrieved using an RS232/COM port. BeeVision returns measurement results when "get#" keywords are received.

Expected result request message: get#

Return scheme: (semicolon as a delimiter)

status_code;status_message;width;length;height;dimWt;realVolume;weight;barcode;dimensioning_unit;weight_unit;measurement_ID;device_serial_number;checksum

Auto send results: When enabled, measurement results are automatically written to the selected COM port without the need of request message from the other side.

Connect: Connect to the selected port with provided settings. If "Share results with RS232" is enabled, the connection is automatically established during the boot process.

Port: Select the port that can be used for RS232 data output.

Baud Rate: Set the baud rate of the RS232 communication.

Append: Set the transmission end character after the measurement results data.

Open Terminal: Brings up the terminal window for the selected port name. Input and output can be followed in the terminal window.

Server Sharing

On this page, automatic upload to a remote FTP or SAMBA server can be set up. The measurement results and images are automatically uploaded to the remote server either every hour or once per day at specified time. Uploading large data to remote server is not recommended and thus, if the device is used frequently during the day, please select uploading every hour.

Measurement data is uploaded in CSV format. Measurement images are uploaded in zip archive. Image names include unique measurement ID and also barcode if available.

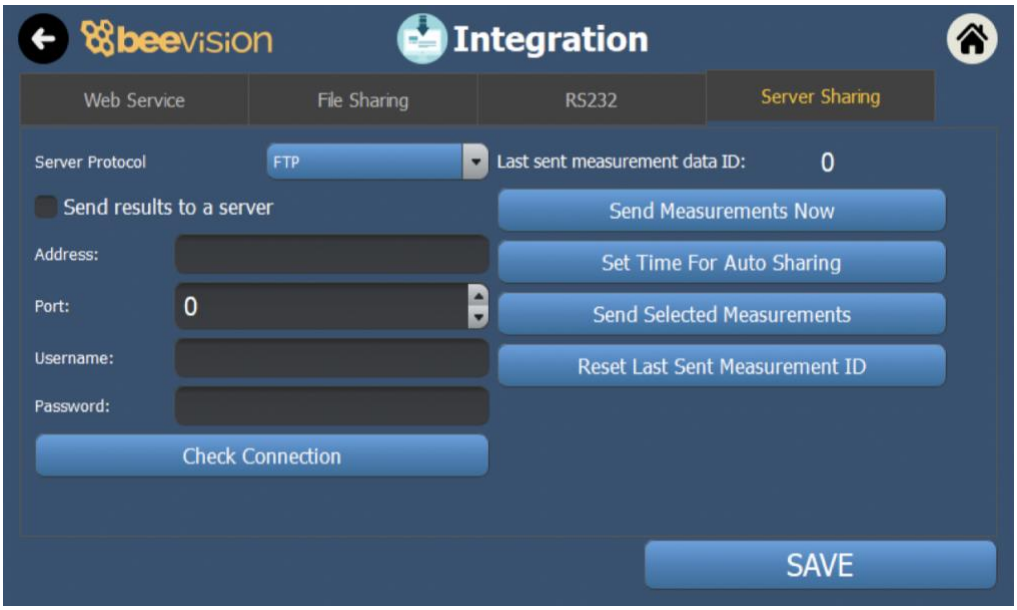


FIGURE 15 SERVER SHARING TAB

Send results to a server: This option is required when the results of the measurements should be shared with a remote FTP or SAMBA drive automatically.

Address: Address of the remote server that measurement results and images will be uploaded.

Port: Port for remote drive connection.

User Name: The user name for remote drive authentication.

Password: Password for remote drive authentication.

Check Connection: Checks if the remote drive is accessible by the BeeVision device.

Last sent measurement data ID: BeeVision dimensioners keep track of the last measurement data successfully shared with the remote drive. The ID is shown here.

Send measurements now: Sends measurements from last successful sent measurement ID to last measured freight ID right away, then updates "Last sent measurement data ID" if results are sent successfully.

Set time for sharing: Brings up the dialog box to select either sending measurement results to desired remote drive every hour or every day at a given time which could be modified on the dialog box as shown in Figure 16.

Send Selected Measurements: Users may manually pick which measurement results should be sent to the remote drive independent of whether they are previously sent or not. This does not update "Last sent measurement data ID".

Reset Last Sent Measurement ID: Resets last sent measurement ID to remote drive.

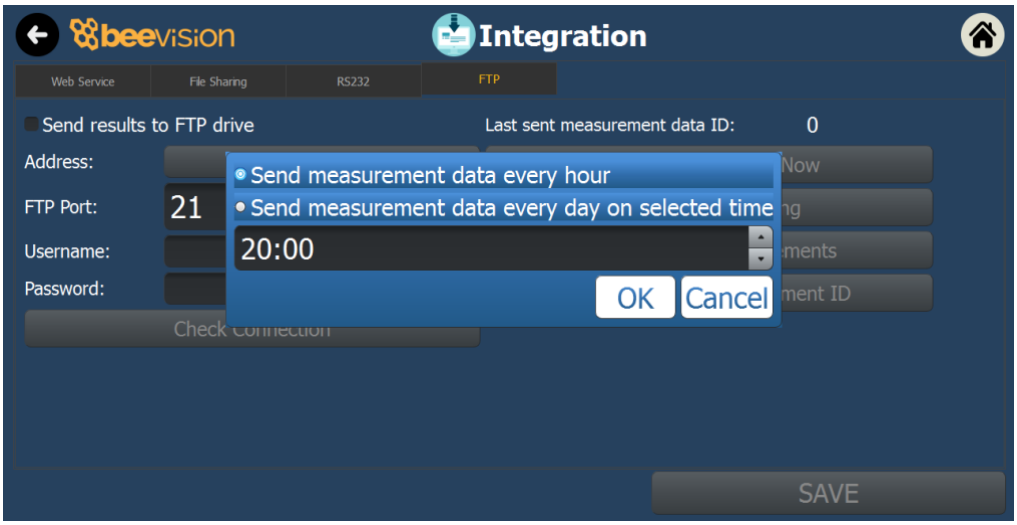


FIGURE 16: INTEGRATION PAGE FTP TAB

e. Network Settings Page

Network settings page includes 2 sub-pages: Ethernet settings page and Wi-Fi settings page.

Ethernet Settings Page

DHCP is enabled by default as factory settings. Plus, an alternative static IP is set following the scheme below:

IP: 10.2.1.<last_three_numbers_of_serial_number>

Subnet:255.0.0.0

When an Ethernet cable is connected to a BeeVision Dimensioner, by default BeeVision tries to get an automatic IP via DHCP for 3 minutes. If the automatic IP could not be set, it settles back to the alternate static IP.

If you directly connect the BeeVision dimensioner to your PC, you should set the IP of your PC accordingly, such as 10.2.1.1, to be able to use the web interface from your browser or to control BeeVision via Volumizer-API.

⚠ After you connect BeeVision Dimensioner to a computer using an Ethernet cable, you should wait for longer than 3 minutes before BeeVision Dimensioner assigns itself the alternate static IP when dynamic (DHCP) is selected.

To test a successful connection, you can ping the device's static IP.

If you would like to connect BeeVision dimensioners to an access point, just connect the cable and BeeVision can receive automatic settings with DHCP. You can also set local area network (LAN) settings on the Ethernet page of GUI or WebUI.

Static: The settings provided on this page are used for Ethernet connection. The user sets IP, Subnet and Gateway addresses. DNS is the same as Gateway.

Dynamic: Device uses the DHCP protocol. The router assigns an IP address, Gateway and Subnet Mask automatically.

Physical Address: Physical (MAC) address of the adapter.

⚠ Settings changes have no effect until the "Apply" button is pressed.

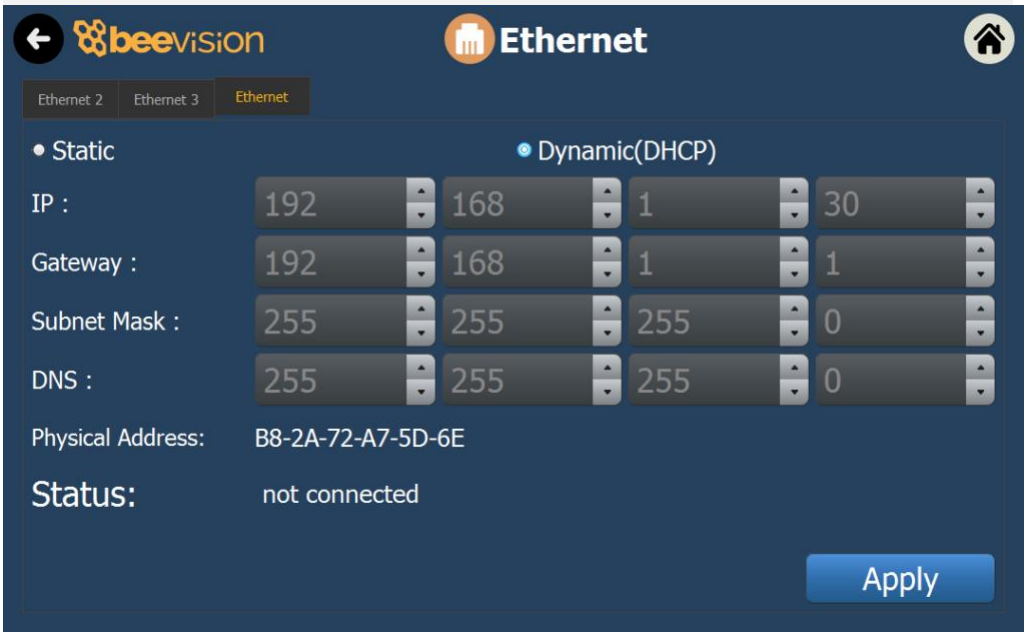


FIGURE 18: ETHERNET SETTINGS PAGE IN VOLUMIZER U

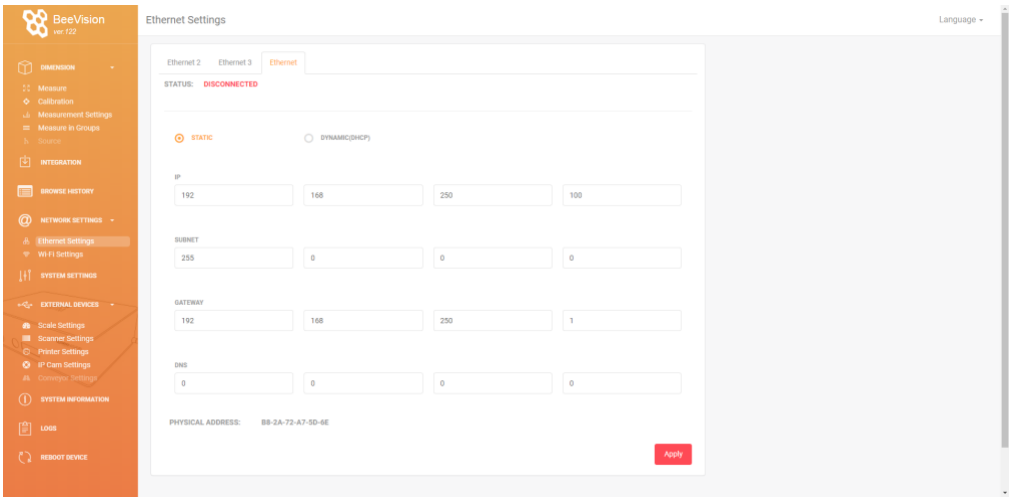


FIGURE SEQ FIGURE * ARABIC 17: ETHERNET SETTINGS PAGE IN WEBUI

Wi-Fi Page

The wireless connection settings can be changed on this page. If there is no Wi-Fi interface on your BeeVision device, a warning message appears.

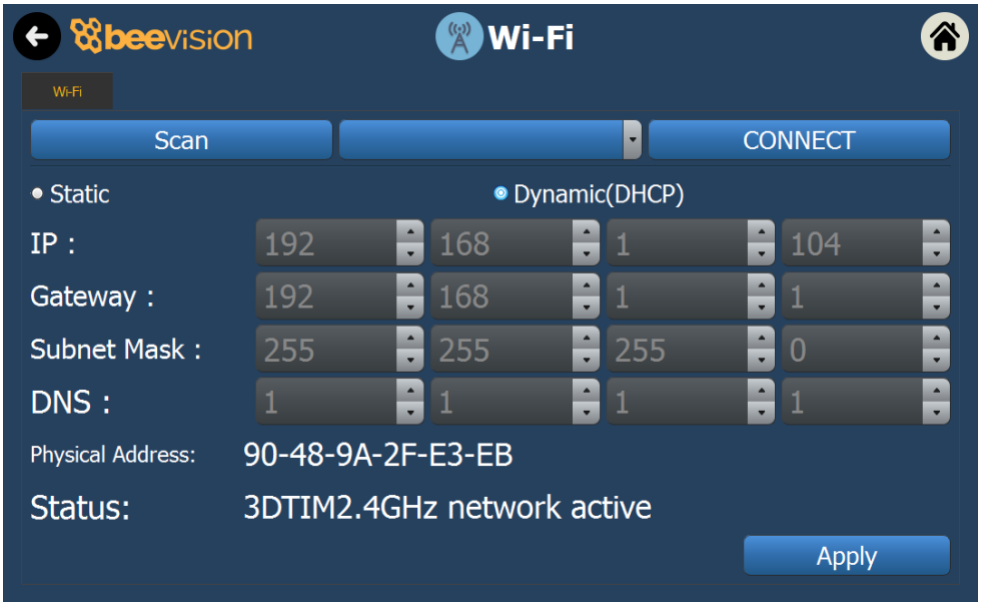


FIGURE 19: WI-FI SETTINGS PAGE IN VOLUMIZER UI

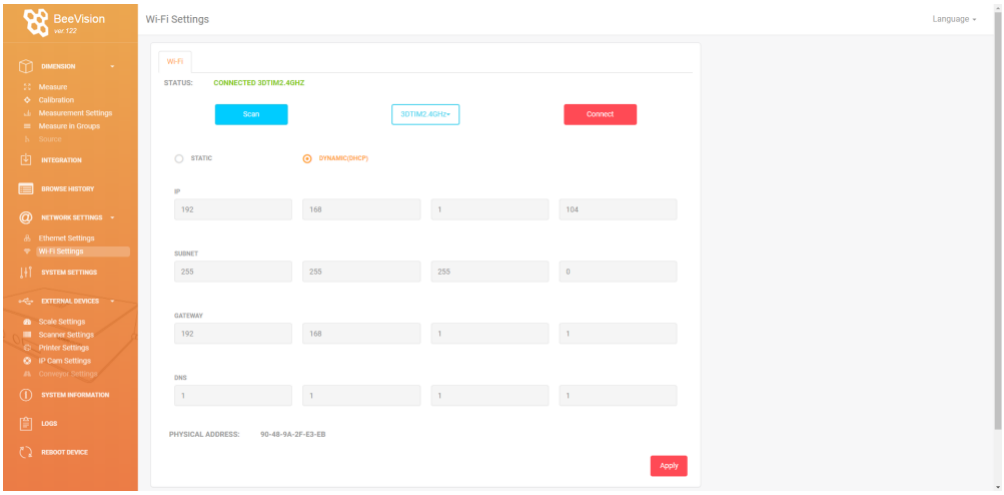


FIGURE 20: WI-FI SETTINGS PAGE IN WEBUI

Static: The settings to create a Wi-Fi connection are provided in this page. The user sets IP, Subnet and Gateway addresses. DNS is the same as Gateway.

Dynamic: Device uses the DHCP protocol. The router assigns an IP address, Gateway and Subnet Mask automatically.

⚠ Settings changes have no effect until the “Apply” button is pressed.

Scan: Scans available Wi-Fi networks. Results are displayed in the drop-down list next to the button. Users can select a network from the drop-down list.

⚠ If your Wi-Fi is not listed in the available networks, please reboot the device and retry.

Connect: Connects to the selected network. If the network is password-protected, the user will be asked to enter a password. Connection status with connected network name is showed in the lower right corner above the “Connect” button.

Physical Address: Physical (MAC) address of the adapter.

f. System Settings Page

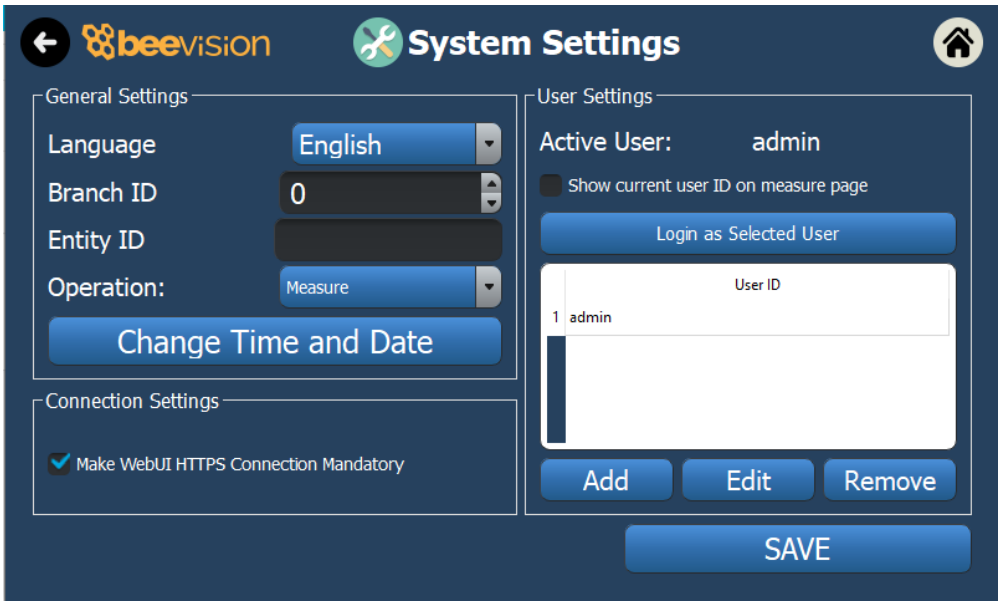


FIGURE 21: SYSTEM SETTINGS PAGE IN VOLUMIZER UI

Language: The language of the device is set from this section. There are currently four options: English, Turkish, Spanish and French.

Branch and Device ID: These IDs help users differentiate which BeeVision dimensioner is used if there are many dimensioners in operation.

Operation: Set the main operation of the BeeVision Device. The start page of the BeeVision dimensioner depends on the selected operation type. There are 4 options: Measure, Measure in Groups, Decode, Measure and Decode. Some options might be disabled based on the purchased model.

Change Time and Date: Changes system time and date.

> ⚠ The device will reboot after changing time and date.

Make WebUI HTTPS Connection Mandatory: If enabled the connection type on WebUI will be switched to HTTPS.

Active User: Shows who is currently using the BeeVision device.

Show current user ID on measure page: If enabled shows currently logged in user's ID on measure page.

Login as Selected User: Logins to the selected user in the user table. Password dialog will be shown.

Add: Adds a new user. User ID and password dialog will be shown.

Edit: Edits the password of the selected user. First, enter the current password then enter a new password.

Remove: Removes the selected user.

> ⚠ "admin" is the default user, cannot be removed. The default admin password is "1111".

Save: Saves the new settings. If not pressed, settings are deleted after a reboot.

> ⚠ Login operation can also be done by scanning user ID barcode with a barcode reader on measure page. Create and print a

barcode that includes only user ID. When the user ID barcode is scanned, password dialog box will appear and the user can log in into the system.

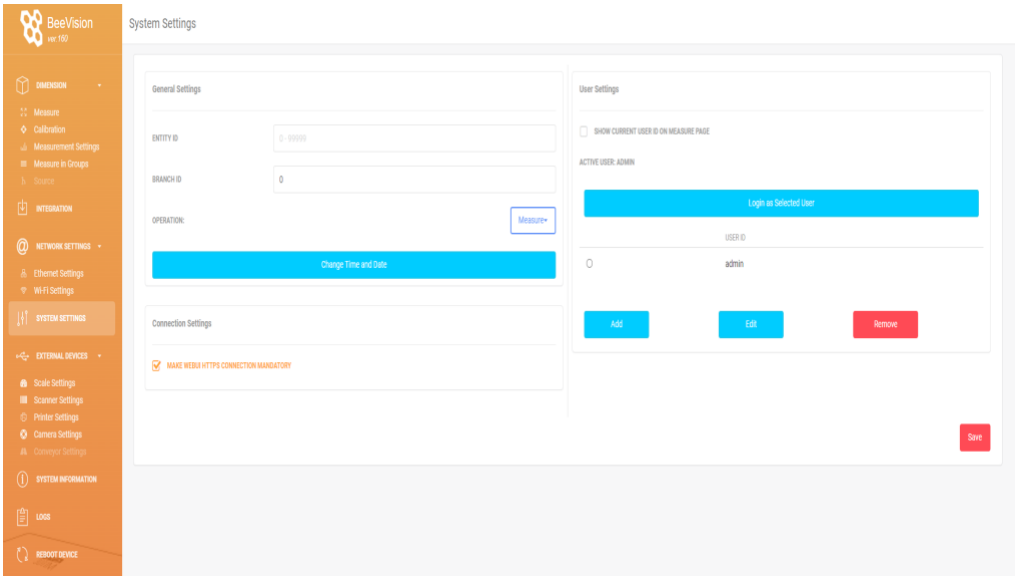


FIGURE 22: SYSTEM SETTINGS PAGE IN WEBUI

g. External Devices Page

In this page settings related to the external devices can be modified. There are 5 pages: Scale Settings, Scanner Settings, Printer Settings, Conveyor Settings, IP Cam Settings as shown in Figure 23.

FIGURE 23 EXTERNAL DEVICES PAGE

h. Scale Settings Page

Settings related to scale connection can be changed on this page. By default, COM1 is the scale connection port.

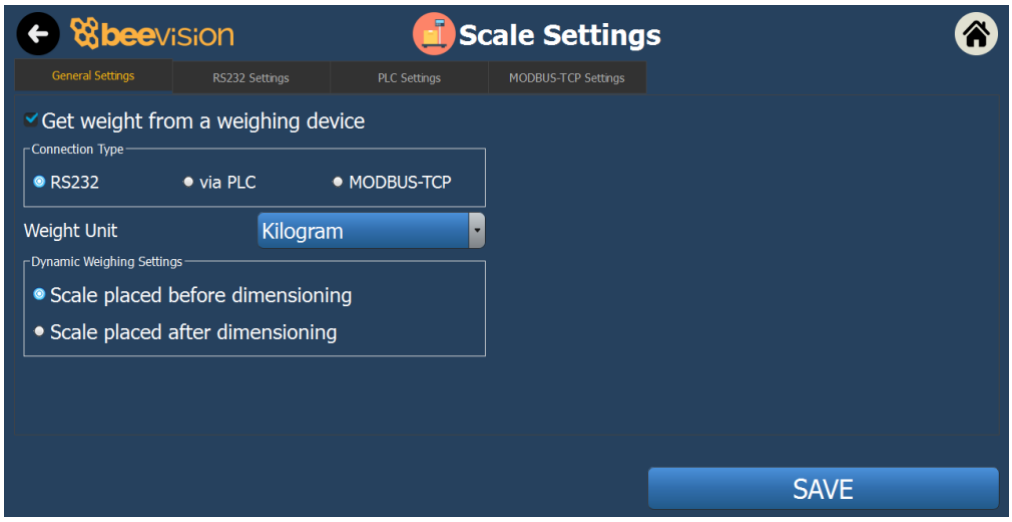


FIGURE 24 SCALE SETTINGS PAGE IN VOLUMIZER UI

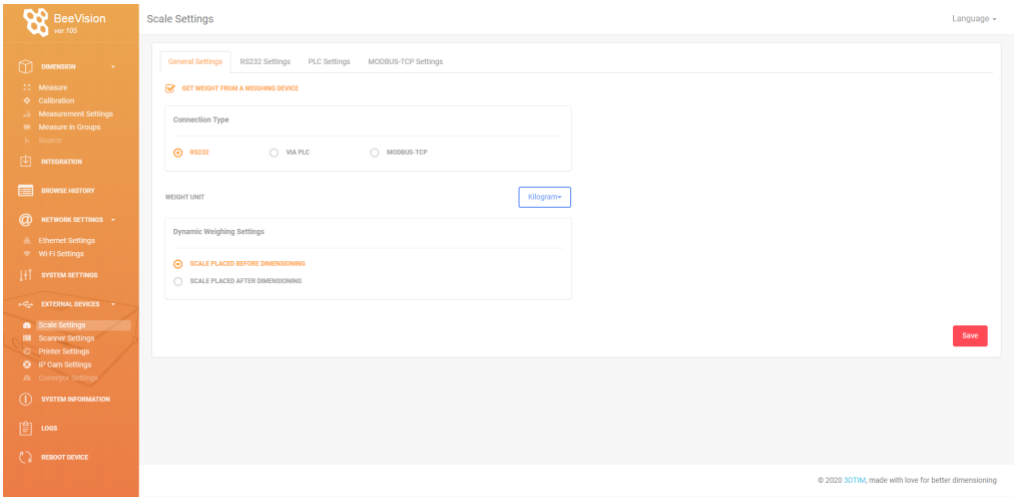


FIGURE 25: SCALE SETTINGS PAGE IN WEBUI

General Settings

Get weight from a weighing device: If not enabled, weight is not retrieved from a scale and weight field is removed from the "Measure Page".

Weight Unit: Select the unit of weight: Kilogram, pound, kilogram to pound and pound to kilogram. Kilogram and pound options use the result received directly from scale; kilogram to pound and pound to kilogram options convert received results internally.

Connection Type: BeeVision dimensioners can get scale output via RS232 communication, via MODBUS-TCP protocol or via PLC over Ethernet. The default type for scale communication is RS232 in BeeVision dimensioners.

Checkweigher placed before/after dimensioning: Set the timing of weight measurement relative to dimensioning operation. This option is not applicable in static dimensioners and only used in dynamic measurement systems.

RS232 Settings

Connect/Disconnect: Start or stop RS232 communication with scale.

Scale Port: Select the COM port of the BeeVision dimensioner. Available COM ports are updated every time the "Scale Settings" page is opened.

Scale Baud Rate: Baud rate of the serial transmission between scale and BeeVision dimensioner has to be defined in the Scale Baud Rate section.

Scale Stability Duration: Results in the indicators of scale fluctuate right after freight is placed upon them. A certain time has to pass for scales to show stable weight value. Scale stability duration setting is placed for this purpose. The BeeVision device does not show any value (width, length, height, weight, etc.) until the indicator of the scale shows the same value for a determined period.

Open Terminal: Brings up the terminal window for the selected scale port name. Results coming from the scale can be followed in the terminal window.

Scale Protocol: Select the scale RS232 data sharing protocol. The auto mode is advised. In auto mode, the BeeVision dimensioner detects the protocol itself.

Scale Trigger Delay(s): Set a delay between the object placement on the scale and measurement trigger. This feature is used only if Scale triggering is selected on the Measurement Settings page.

Do not measure if scale is not connected: When checked, the device does not perform measurement until a scale is connected to the serial port (RS232). When this option is enabled, the device tries to reestablish a connection with the scale every time a measurement is triggered.

Clear results when object removed: When checked, the measurement results are cleared automatically if the user removes the object that is on the scale, i.e. scale transmits 0 weight to BeeVision device.

Don't measure again until object removed: When checked, the freight on the scale can be measured only once even if the user presses more than once to the measure button (both in measure or group measurement pages). Measure button will work again when the scale shows 0kg or lbs (i.e. when the object on the scale is removed).

Wait until object is stable: When checked, the device does not make measurements until scale transmits/shows the same result and the result does not fluctuate for the scale stability duration, which is assigned on the 'Scale Stability Duration' section on the right side.

Use dynamic weight calculation: Select this option when the scale is embedded in a conveyor.

How to connect a scale to BeeVision dimensioners:

- Enable "Get weight from a weighing device" option
- Select RS232 as the scale communication type. RS232 is the default communication type for static BeeVision dimensioners.
- Select scale RS232 protocol. In Auto mode, the BeeVision dimensioner automatically extracts weight data from incoming data.
- Select the COM port of BeeVision Dimensioner. Unless an external USB-RS232 converter is used, the BeeVision dimensioner has one internal RS232 port that is assigned as COM1.
- Set the baud rate of the serial communication
- Make sure scale is connected to RS232 port of BeeVision dimensioner
- Click on Connect button and wait for Connected status
- Reboot the BeeVision dimensioner from Volumizer-GUI or Volumizer-WebUI (the connection between BeeVision and scale is established during the boot process)

Now, the connection should be enabled. Test it by triggering measurement two times and check if weight data is not empty.

⚠ BeeVision scale communication protocol has been designed in a generic way that it can be connected to any scale. Users should adapt their scale connection settings such that scale results are

transmitted via RS232 as they are shown on the scale (i.e. continuous feed mode).

⚠ PLC Settings and MODBUS-PLC Settings pages are not supported in static BeeVision dimensioners. They are used in the dynamic weighing systems.

PLC SETTINGS

Scale PLC Register Address: Register address of the weight result assigned in the PLC.

MODBUS-TCP SETTINGS

MODBUS-TCP IP Address: IP address of the device using MODBUS-TCP protocol.

MODBUS-TCP Port: Port number to connect the device using MODBUS-TCP protocol.

Scale Register Address: Register address of the scale on the device using MODBUS-TCP protocol.

i. Scanner Settings Page

Barcode scanner related settings can be changed on this page. There are 2 types of scanners that can be integrated with BeeVision dimensioners: Handheld Scanner and Fixed Mount Scanner.

BeeVision dimensioners support all brands of handheld USB connected barcode scanners. However, some particular functions on this page are only for Zebra (previously Symbol) brand barcode scanners.

FIGURE 26: SCANNER SETTINGS PAGE IN VOLUMIZER UI

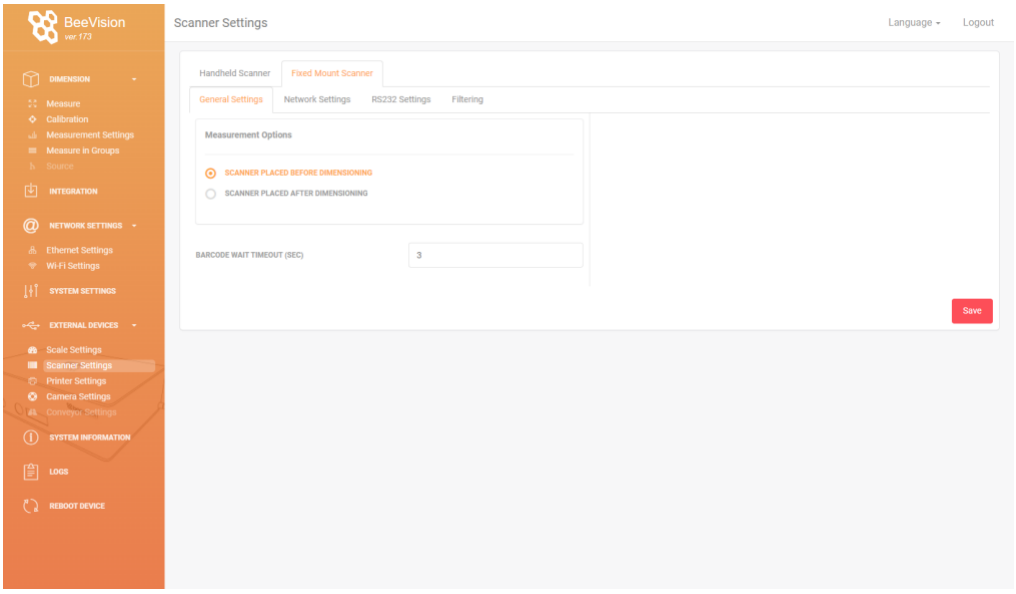


FIGURE 27: SCANNER SETTINGS PAGE IN WEBUI

Handheld Scanner

Trigger Delay (sec): This is the delay between a barcode scan event and subsequent measurement. This delay lets operators move out from the measurement area.

Use handheld scanner before/after dimensioning: Select the preferred timing of the barcode scan event relative to dimension measurement.

Enable barcode match criteria: When enabled, adds a regular expression check to filter scanned barcodes coming from the handheld scanner. When a barcode does not match the criteria, it is ignored.

Barcode match criteria regex: Regular expression input given by the user to filter barcodes.

Fixed Mount Scanner

General Settings

Scanner placed before/after dimensioning: Select the preferred timing of the barcode scan event relative to the dimension measurement.

Barcode Wait Timeout(sec): The time that the BeeVision dimensioner should wait for a barcode or image data from an external source.

Network Settings

Enable barcode listening on network: When enabled, barcode data can be sent by an external barcode reader in the same network. The BeeVision dimensioner waits for a barcode data until barcode wait timeout time is over.

Wait for image from network: When enabled, image data can be sent by an external camera in the same network. The BeeVision dimensioner waits for an image until the barcode wait timeout time is over.

Trigger scanner with measurement trigger: When enabled, an external barcode scanner is triggered with every measurement. This feature is useful when a BeeVision 200 barcode reader is used together with BeeVision dimensioners.

Master Scanner Address: Network address of an external barcode scanner. This feature is supported only for BeeVision 200 barcode readers. BeeVision dimensioners can trigger BeeVision barcode readers.

RS232 Settings

Retrieve barcodes from a COM port: Enables barcode data listening on a COM port. When enabled, the COM port connection is automatically established during the boot process.

Connect: Start and stop listening COM port for barcode data.

Scanner COM Port: Select the COM port for barcode data retrieval.

Scanner Baud Rate: Set the baud rate for scanner communication.

Open Terminal: Brings up the terminal for viewing data input and output at selected COM port with selected baud rate.

Barcode Separator Chars: Set the transmission end char that is sent with the barcode data by an external source.

Reset barcode queue: If the barcode scan event is before the dimensioning, a barcode data queue is generated to keep track of the objects. This button is used for resetting that queue.

Filtering

Do not measure without barcode: When enabled and if measurement result does not have a barcode data, the user is warned and measurement data is not saved and not shared with the customer database. If the "Use handheld scanner after dimensioning" option is selected, the user can scan or enter the desired barcode after measurement.

Do not accept multiple barcodes: When enabled and if multiple barcodes are sent by the fixed mount barcode reader, the user is warned and measurement data is not saved and not shared with the customer database. If the "Use handheld scanner after dimensioning" option is selected, the user can scan or enter the desired barcode after measurement.

Enable must-have barcode match criteria: When enabled, a barcode must exist that matches the entered criteria. If there is no such barcode, the system behaves as no barcode is detected. This feature is only when "Do not measure without barcode" feature is also enabled.

Must-Have Barcode Criteria Reg-Ex: Regular expression input given by the user to make sure that a certain barcode type is detected.

Enable barcode match criteria: When enabled, adds a regular expression check to filter scanned barcodes coming from the external scanners. When a barcode does not match the criteria, it is ignored.

Barcode match criteria regex: Regular expression input given by the user to filter barcodes from external barcode readers.

Enable barcode priority list: When enabled, checks for 20 different barcode types and their regex patterns to be prioritized. Lower in the tab section means higher priority ie. The barcode type and pattern in tab 1 has higher priority than in the tab 20. If fixed mount scanner scans more than one barcode, it will only detect in the higher priority rank and ignores the others.

Barcode Type: It contains the corresponding tab's barcode type. Initially accepts all barcode types. If you want to restrict as one barcode type you can select a specific barcode type among 20 different barcode types.

Barcode RegEx: It contains the corresponding tab's barcode regex pattern. Initially accepts all regex batterns. You can type the regex you want and give it a priority.

Barcode Priority List on Web UI:

You can download and upload barcode priority list as csv file with Web UI. When you edit your barcode priority list on Web UI click "Download Barcode Priority List" button. With that you can share your barcode priority list with other devices as well. You only need to click "Upload Barcode Priority List" from the other device's Web UI.

You can also create barcode priority list from an empty csv table. For that you need to download your barcode priority list first. You can use that file as a template for later use.

You can type your barcode type as string value. You can see the available barcode types from Web UI. Also, you can type the barcode regex as string. On thing you need to be careful about type the barcode type with no space character.

j. Printer Settings Page

Settings of barcode printers connected to the BeeVision dimensioner can be changed on this page. BeeVision dimensioners support only Zebra brand barcode printers.

Print Results: When this option is checked, every time a successful measurement performed one or optionally more barcodes are printed from the connected barcode printer.

Barcode or Label: When the "Label" is selected, measurement results are printed as text data. When the "Barcode" is selected, results are embedded in a barcode.

Barcode Printer Port/Name: Users can select the printer name here.

Barcode #: The number of barcodes to be printed after every successful measurement.

Print Test Page: Prints a test page to test the printer.

Portrait or Landscape: If the "Barcode" option is selected as printing results, these options define barcode orientation on the printed label.

Left Margin: The margin from the left edge of the label.

Top Margin: The margin from the upper edge of the label.

Font Size: The font size of the text to be printed on the label.

Barcode Prefix: If the "Barcode" option is selected as printing results, the user can add desired characters at the beginning of each printed barcode.

Barcode Suffix: If the "Barcode" option is selected as printing results, the user can add desired characters at the end of each printed barcode.

Data separator: If the "Barcode" option is selected as printing results, the user can enter the desired character to separate each measurement data on the printed barcode. The default separator is "|" character.

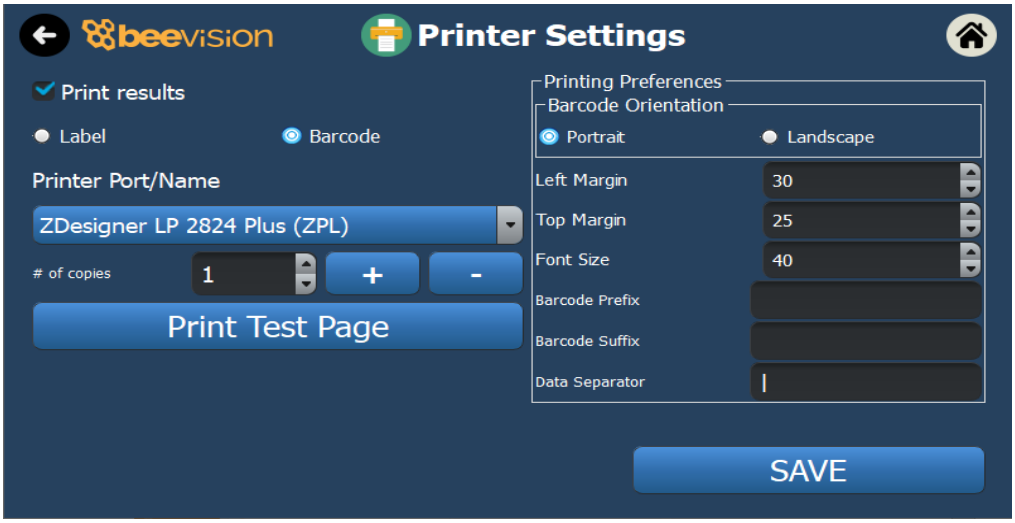


FIGURE SEQ FIGURE * ARABIC 28: PRINTER SETTINGS PAGE IN VOLUMIZER UI

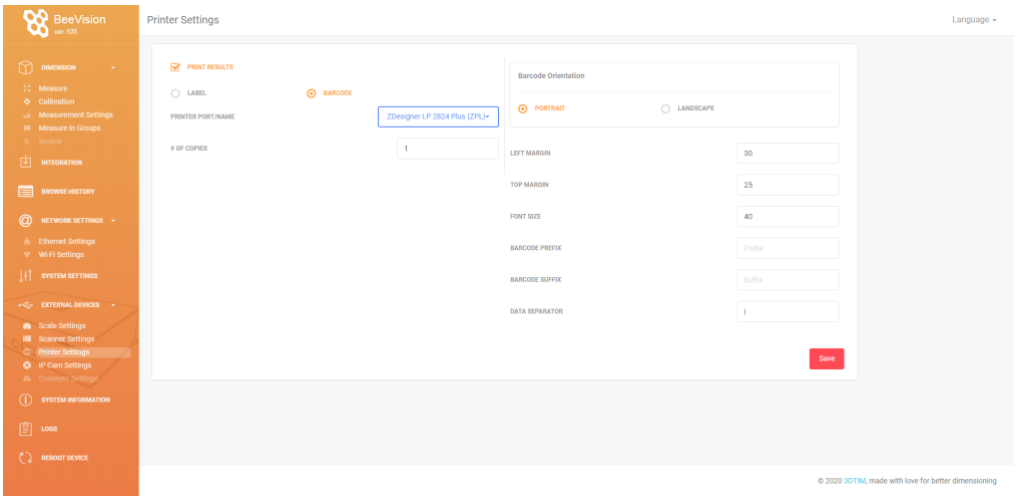


FIGURE 29: PRINTER SETTINGS PAGE IN WEBUI

k. IP Cam Settings Page

BeeVision dimensioners support image capturing with IP cameras. Up-to 4 cameras can be used to take images of the objects from all sides. Users need to set the following data to capture images from IP cameras:

Capture image from IP camera: Enables capturing from the selected IP camera.

Image capture address: The address of the IP camera's still image capture URL.

Username: Username for IP camera connection authentication.

Password: Password for IP camera connection authentication.

Image crop top: Crop taken image from the top. Value in pixel.

Image crop bottom: Crop taken image from the bottom. Value in pixel.

Image crop right: Crop taken image from the right. Value in pixel.

Image crop left: Crop taken image from left. Value in pixel.

After necessary fields are filled, the "Test Image Capture" button can be used to test the image capture. If the capture is successful, a frame with the image is shown; otherwise, a failure message is shown.

> ⚠ BeeVision devices only support the "basic authentication" method for the IP camera connection. Thus. IP camera's authentication method must be set to basic authentication.

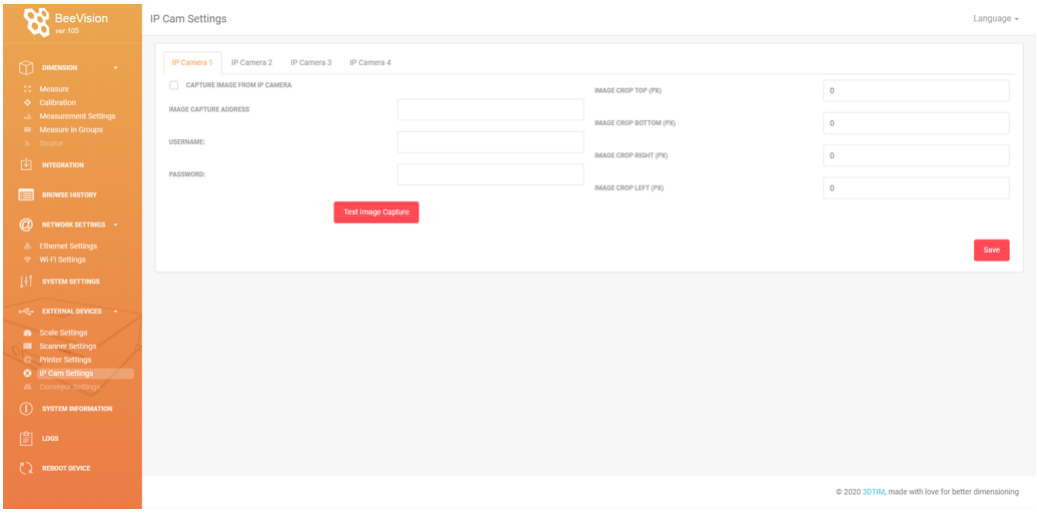


FIGURE SEQ FIGURE * ARABIC 30: IP CAM SETTINGS PAGE IN WEBUI

If “Capture image from IP camera” is enabled, an image from the IP camera is taken upon a successful measurement and the image data is sent to the address defined in the “Asynchronous Image Sharing” in Sharing tab of the Integration page (see for more details about image sharing in Integration Page).

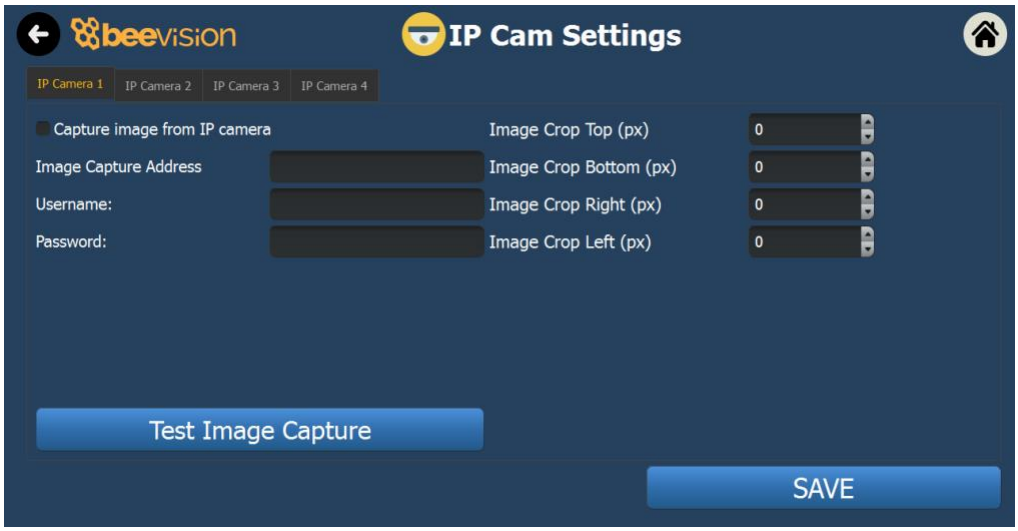


FIGURE SEQ FIGURE * ARABIC 31: IP CAM SETTINGS PAGE

I. Browse History Page

Browse History page shows the saved previous measurement results. Measurement images can be viewed by clicking on the image icons. Web service data sharing status can also be seen on the history table. Green tick means successful, red cross means unsuccessful sharing. Yellow exclamation mark means data sharing is stuck at sharing state and gray circle means data sharing with web service is disabled.

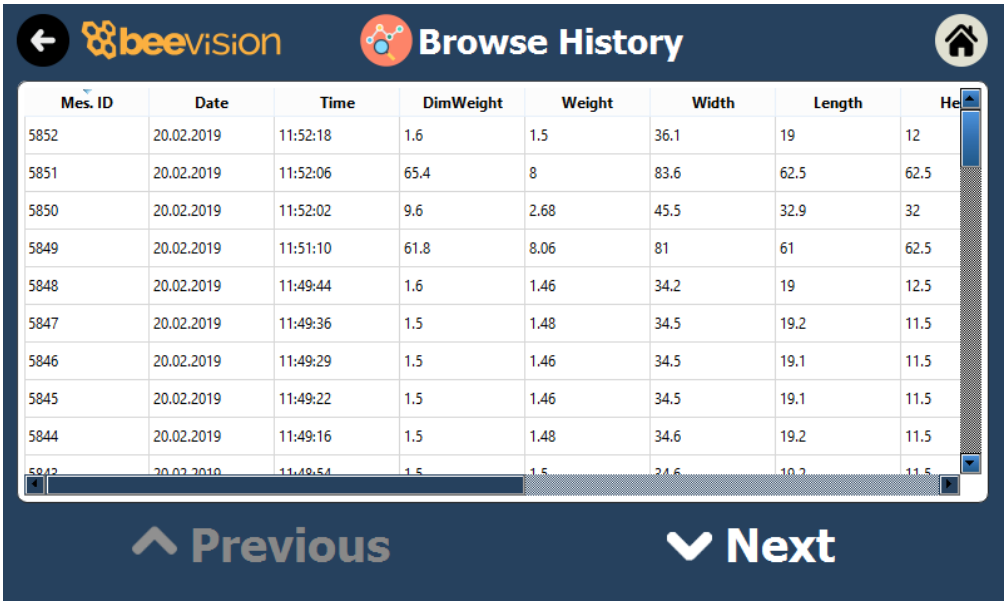


Figure 32: Browse History Page in Volumizer UI

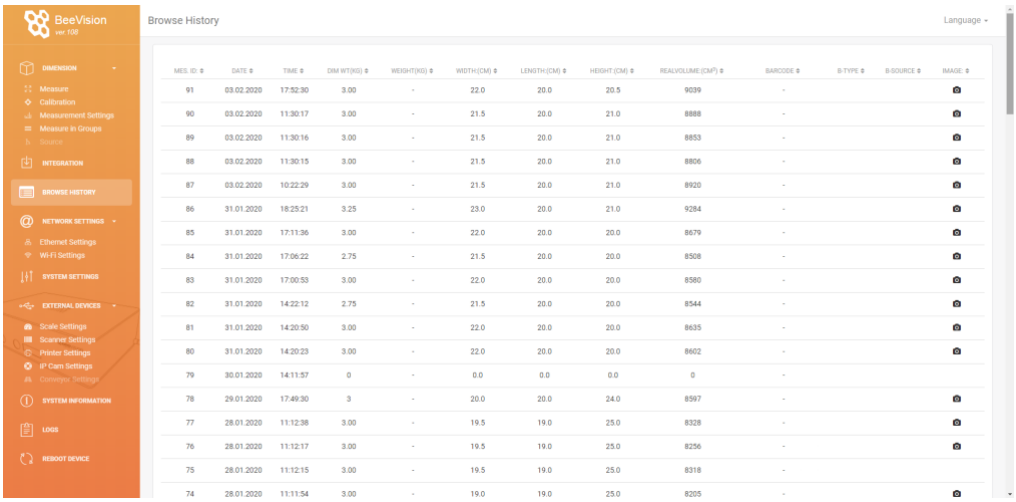


Figure 33: Browse History Page in WebUI

m. System Information Page

System Information page includes data about the device and its features. Certification status indicates whether the device is certified or not.

Check for Updates: Users can check whether a newer version of Volumizer is available. If an update is found, the user is asked to update the Volumizer.

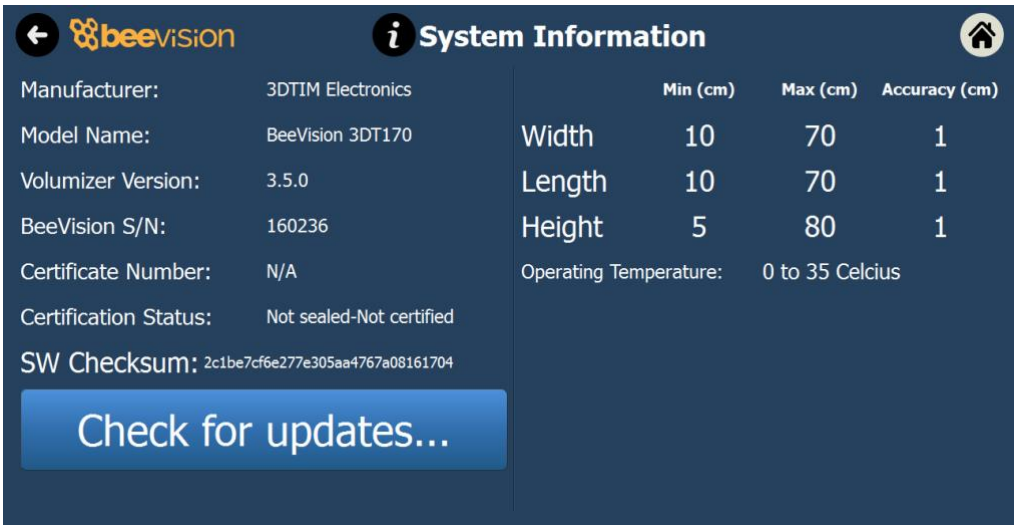


FIGURE SEQ FIGURE * ARABIC 34: SYSTEM INFORMATION PAGE IN VOLUMIZER UI

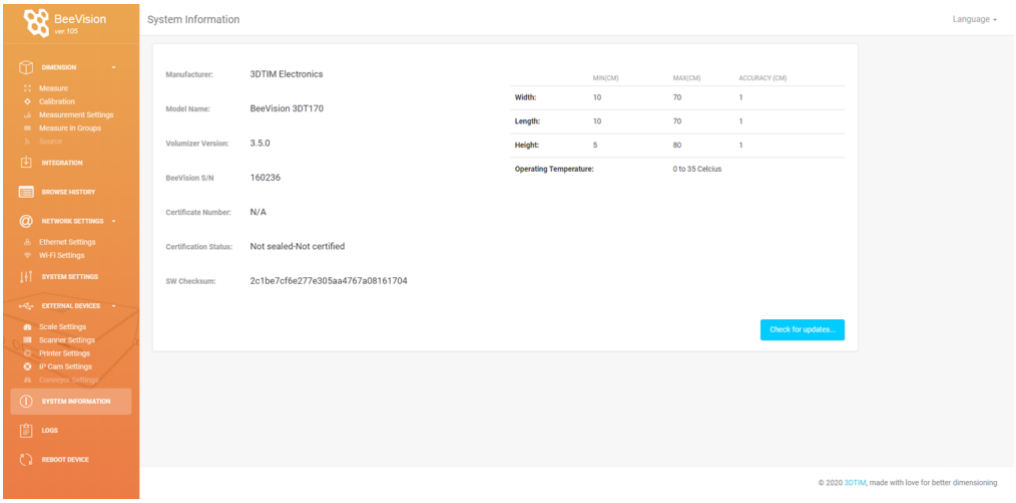


FIGURE SEQ FIGURE * ARABIC 35: SYSTEM INFORMATION PAGE IN WEBUI

Logs Page

On this page, users can view 3 logs: Parameter Change Log , System Log and Activity Log.

Every parameter change that has an effect on dimension measurement is recorded in the Parameter Change Log.

System Log is the general log file of the device. There are 3 types of log messages: INFO, WARNING, and ERROR.

Activity Log is the section that hold the logs for more general information. Such as, settings that are changed in calibration and user settings. Also, it logs the starting and stopping states of the conveyor. Moreover, it stores the scanned products' barcodes with their properties.

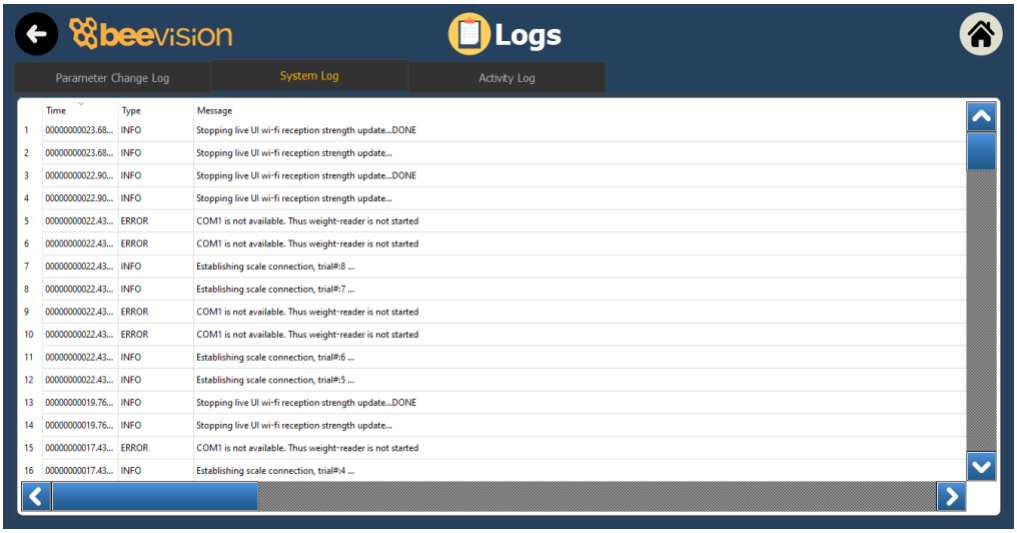


FIGURE 36: LOGS PAGE IN VOLUMIZER UI

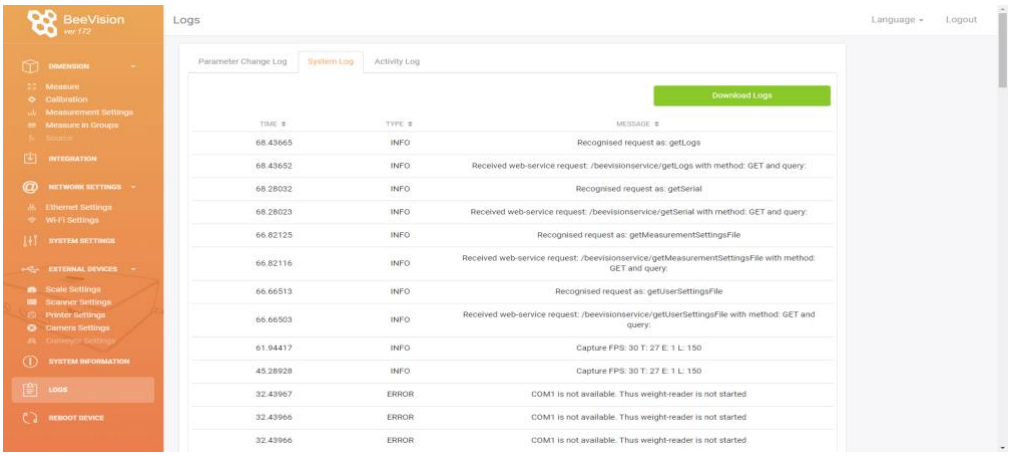


FIGURE 37: LOGS PAGE IN WEBUI

4 Operation

Before starting measurements, the BeeVision dimensioners must be calibrated. Calibration is done only once the sensor is mounted. If its height with respect to the measurement surface is not changed, there is no need to recalibrate the device. The measurement area is set during the calibration process. After the calibration, the device may be sealed for certification purposes.

To perform a measurement, an object must be placed into the measurement area and measurement should be triggered either automatically or manually depending on the selected trigger mode. During measurement, there must be only one object in the measurement area. Objects can be placed with any orientation to any location in the defined measurement area. BeeVision dimensioners cannot measure transparent objects such as glass.

If the dimensions of the object are outside of the limits of devices range, then an error message may be displayed if the corresponding check is activated in Measurement Settings.

There are several trigger modes in BeeVision dimensioners:

Manual Triggering: Manual operation mode. The user needs to press the Measure button in GUI or WebUI to perform a measurement.

Barcode Scanner Triggering: The user needs to scan a barcode with an attached barcode scanner to start a measurement. Measurement is triggered after the scan event. In addition to the dimensioning results, the barcode is also shown.

Automatic Triggering: Automatic operation mode. Whenever a package is placed into the measurement area, its dimensions are measured and shown.

Manual & Bar. Scanner Triggering: Manual and Barcode Scanner triggering methods can be used at the same time.

Scale Triggering: When a package is placed into the measurement area, measurement is automatically triggered after a certain time of delay. The scale should transmit a value larger than 0 to start the triggering.

Trigger settings can be changed in the Measurement Settings page of GUI or WebUI.

If scale connection is enabled on the Scale Settings page, the weight result is also indicated in the Measure page.

5 Operation with Scale

BeeVision dimensioners can be operated with a scale and retrieve the weight of an object. The scale connection is established via an RS232 interface that is available in most of the scales. Hence, independent of a scale model, the BeeVision dimensioner can be connected to any scale using the RS232 port.

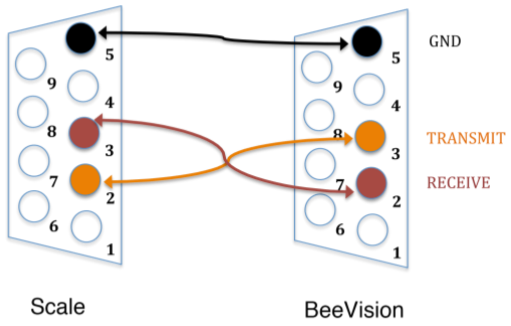


FIGURE 38: CONNECTIONS BETWEEN SCALE AND BEEVISION RS232 PORTS

Volumizer employs unidirectional communication with scales in which scale sends its results continuously via RS232 without waiting for a trigger/send a command from the BeeVision dimensioner.

To establish a connection with a scale, follow further instructions.\

- Set the unit of the scale to kilogram (kg)

- Set RS232 settings on the scale. Recommended connection settings are as follow:

  Baud Rate: 9600
  No parity
  Byte size = 8
  Stop bits = 1
  Flow control = none

- Set scale RS232 feed to continuous mode. In this mode, scales send data periodically via RS232 interface independent of whether there is an object on the scale. In some scales, this mode is described as "Transmit the displayed data"

- Go to Scale Settings page in Volumizer UI or WebUI and set baud rate the same as in scale.

- Select the port name from the drop-down list. The default COM port name is COM1. If you are using an RS232-USB converter and there is no port listed, reboot the BeeVision device after the converter is connected to the device. Some converters may not be supported, get in touch with 3DTIM if you require assistance on this matter.

- Select "RS232" as communication type and enable "Get weight from a weighing device" then click on the "Connect" button.

- Click on the "Open Terminal" to confirm the incoming data from your scale

- Click on the "Save" button to save your settings

After these settings, scale continuously sends reading results to the BeeVision dimensioner. Volumizer extracts numeric data from received data and interprets it as the weight.

⚠ Scale feed should include a carriage return <CR> or newline characters after each new data. If you have problems with scale connection, first check incoming scale data with a PC and make sure that received data includes the weight result.

Expected example data from scale RS232 port: (All of the text in data received from the scale is ignored, only numerical data, such as 5.10, is taken into account)

+5.10 kg SE, 0, ST
+5.10 kg SE, 0, ST
+0.00 kg SE, 0, ST
.
.
.

⚠ If you require a particular protocol to receive data from scales, please get in contact with the 3DTIM team via info@beevision.ai and describe your needs.

6 Operation with Handheld Scanner

BeeVision dimensioners support all types of barcode scanners. The barcode scanner should be in keyboard emulation mode to be able to recognized by the Volumizer.

⚠ If the barcode scanner is not in keyboard emulation mode, i.e. scanner does not behave like a keyboard, Volumizer will not be able to capture scan events.

Barcode scanners should send newline chars after the barcode (this is the default operation in most of the brands).

⚠ If the barcode scanner does not send a newline character, Volumizer will not be able to capture scan events.

How to use a barcode scanner with BeeVision dimensioners:

- Change trigger mode to “Barcode Scanner” or “Manual&Bar. Scanner” in “Measurement Settings” page in GUI or WebUI

> ⚠ Handheld barcode scanners are supported only with “Barcode Scanner” trigger mode in static BeeVision dimensioners.

- Enable “Trigger only with scanner” to hide the “Measure” button in “Measure” page if desired
- Click on the “Save” button
- Select “Use handheld scanner before dimensioning” in Scanner Settings in External Devices Page
    - “Use handheld scanner after dimensioning” option is used in dynamic applications and has no function in static BeeVision dimensioners
- Plug the USB cable of the barcode scanner to one of the USB ports of BeeVision dimensioner
- Reboot the system
- Try to scan a barcode and confirm that measurement is triggered.
- You can adjust “Trigger Delay (sec)” in the Scanner Settings page to change the delay of the measurement trigger event

7 Operation with Printer

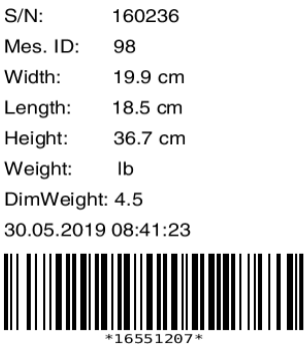
BeeVision dimensioners support only Zebra brand barcode printers. Please, get in touch with info@beevision.ai if you would like to use other brands with your BeeVision dimensioners.

How to use a printer with BeeVision dimensioners:

- Enable the “Print results” option in the “External Devices” -> “Printer Settings” page.
- Select results print type of your choice: as Label or Barcode
- Plug the USB cable of printer to the BeeVision dimensioner. And select the model of your printer in “External Devices” -> “Printer Settings” page “Barcode printer Port/Name”.

- Reboot the system
- Perform a measurement and check the printed label.
- Make adjustments using settings in the “External Devices” -> “Printer Settings” page.
    - **X Axis Margin:** Margin from the upper edge
    - **Y Axis Margin:** Margin from the left edge
    - **Font Size:** Font size of the text (Only applicable if label option is selected)
    - **Barcode Prefix:** (Optional) Prefix for the barcode data (Only applicable if barcode option is selected)
    - **Barcode Suffix:** (Optional) Suffix for the barcode data (Only applicable if barcode option is selected)
    - **Separator for Data:** Separator character between measurement data (Only applicable if barcode option selected)
    - **Portrait / Landscape:** Default setting for barcode printing is vertical on the label for better fitting. Users can change the orientation of the barcode.

EXAMPLE LABEL



EXAMPLE LABEL WITH BARCODE

FIGURE SEQ FIGURE * ARABIC 39: EXAMPLE

Data on the generated barcode (with given order):

- Measurement ID
- Width
- Length
- Height
- Weight

Generated barcode type is Code-128.

8 Volumizer API

BeeVision employs web-service communication to transfer data to the user SW infrastructure. Users may freely select the programming language to communicate with Volumizer. Please, ask for support by dropping an email to info@beevision.ai if you require assistance.

a. Web Service

BeeVision dimensioners support server and client modes in web service communication.

Client Mode

When a BeeVision dimensioner behaves as a client, it calls (consumes) the web-service of a remote web-server when a successful measurement is performed. This way, measurement results are automatically sent to the customer database in an asynchronous fashion. The address of the service of the remote web server is set in the "Integration Settings" page of GUI and WebUI. The data consists of following fields and values in JSON format:

Data Structure of BeeVision Web Service in Client Mode

Field Name	Data Type	Brief Description
StatusCode	int	• 0: success, 1: Pallet height included, Negative values: failure (-3: Object is not completely within the measurement area, -4: Measurement was cancelled, -8: Scale is not connected, -11: Dimensions are too large, -12: Dimensions are too small, -15: Device temperature is too high, -98: Measurement ignored)

StatusMessage	string	Empty when successful otherwise error explanation
Width	string	Width of the measured object
Length	string	Length of the measured object
Height	string	Height of the measured object
DimWt	string	Dimensional weight of the measured object. Calculated using the set dimensional weight coefficient/divisor
RealVolume	string	Real volume of the measured object
Weight	string	Weight value coming from the scale that is connected to the BeeVision dimensioner
UnitID	string	Unit ID that is assigned to the device
BranchID	string	Branch (Location) ID that is assigned to the device
Barcode	string	Barcode of the object if barcode data is available otherwise empty
BarcodeType	string	Type of the barcode if available.
BarcodeSource	string	Source of the barcode data. Manual: from a handheld scanner. Auto: from a fixed mount barcode reader
GlobalCornerPointsCoordsXYZ	string	The global coordinates of the measured object are calculated with reference to the ground projection axis group of the master camera. (8 corner points) Format: x1,y1,z1;x2,y2,z2 ;x3,y3,z3;x4,y4,z4 ;x5,y5,z5 ;x6,y6,z6 ;x7,y7,z7; x8,y8,z8

Date	string	Measurement date
Time	string	Measurement time
MeasurementID	string	Unique ID of the measurement
ImageBase64	string	Image of the object encoded as Base64 string
SerialNumber	string	Serial number of the device
DimUnit	string	Unit of the dimensions provided within the result
WeightUnit	string	Unit of the weight provided within the result
IsRegular	int	1: when object is a regular shaped object 0: when object has an irregular shape.
ObjectRGBCoordinates	string	Object's corner coordinates in RGB image Format: $x_1,y_1\|x_2,y_2\|x_3,y_3\|x_4,y_4$
Operator	string	User ID of the measurer
Reserved1	string	Reserved for future use
CRC	string	CRC16 checksum of the whole message excluding this value

An example of successful measurement result message:

{"StatusCode":0,"StatusMessage":"","Width":"68.0","Length":"176.0","Height":"70.0","DimWt":"279.00","RealVolume":"0","Weight":"","UnitID":"","BranchID":"0","Barcode":"","BarcodeType":"","BarcodeSource":"","GlobalCornerPointsCoordsXYZ":"-210,25,0;-206.2,-43.3,0;-30.4,-33.4,0;-34.2,34.9,0;-210,25,70.4;-206.2,-43.3,70.4;-30.4,-33.4,70.4;-34.2,34.9,70.4",

"Date":"05.03.2025","Time":"16:42:42","MeasurementID":"25","ImageBase64":””,SerialNumber":"272XXX","DimUnit":"cm","WeightUnit":"kg","IsRegular":1,"ObjectRGBCoordinates":"43,44|22,47|48,42|5,5","Operator":"admin",Reserved1":"","CRC":"123123"}

An example successful image message:

{"StatusCode":0,"StatusMessage":","ID":"254","Barcode":"31959968681","ImageBase64":"<*long_string_representation_of_image*>"}

Response from Remote-Server in Client Mode

If the “Wait response from remote server” option is enabled, BeeVision dimensioner waits for a response from remote web server after sending the measurement data. Results are saved only if a success indicating response from remote server is received. If this option is not enabled, Volumizer does not expect a response from the remote web-server and the results are saved in local storage area regardless of the returned response message.

After a measurement is completed, “Please Wait” dialog box will appear and measurement results are sent to the remote web server. BeeVision will wait for a JSON response from the remote server for 10 seconds. A dialog box will appear if a failure indicating response is returned from the server or if timeout occurs. The returned error message is shown on the screen. If the returned message indicates success, “Please Wait” dialog will disappear and results are shown.

Response data from the remote server should be in the following type in JSON format.

Successful response example:

{"ResponseCode":0,"ResponseMessage":""}

Unsuccessful response example:

{"ResponseCode":-3,"ResponseMessage":" Barcode not found"}

Server Mode

BeeVision has an internal HTTP server listening port 27018 for incoming requests. Users should make HTTP requests with the GET method if no data is passed from the user to the BeeVision device, otherwise, the POST method should be used. HTTP Version 1.1 is supported.

Connection Protocol: HTTP based web service

Port: 27018

Service Address: *<device_ip>*:27018/beevisionservice/*<command_name>*

Return Data: Returns corresponding data in **JSON** format. If an error at the HTTP request occurs, the HTTP error code is returned. If an error occurs during internal operation, **StatusCode** and **StatusText** fields in returned JSON data provides more information about the error.

If the operation is successful, the returned StatusCode is 0. If the operation fails, returned StatusCode has a negative value indicating the type of the error.

i. Accepted Commands by Volumizer API

⚠ Following commands may behave differently or may not exist at the Volumizer version prior to 3.4.3. Please, update your Volumizer if you are using an older version. If your update fails, get in touch with 3DTIM.

User can make HTTP requests with addresses provided in the following table. For example, to perform a measurement with a BeeVision device with local IP address 192.168.1.10: (**can be simply tested with a browser**)

http://192.168.1.10:27018/beevisionservice/**measure**

returns a similar JSON data if operation was successful: (data structure is same as in client mode)

{"StatusCode": 0,
"StatusMessage": "OK
"Width": "5.90",
"Length": "5.90",
"Height": "17.40",
"DimWt": "0.085550",
"RealVolume": "551",
"Weight": "0.000000",
"UnitID": "0",
"BranchID": "0000",
"Barcode": "",
"BarcodeType":"",
"BarcodeSource": "",
"Date": "19.02.2019",

"Time": "16:40:28",
"MeasurementID": "5506",
"ImageBase64": "",
"SerialNumber": "160122",
"DimUnit": "cm",
"WeightUnit": "kg",
"IsRegular": 1,
"ObjectRGBCoordinates": "12,44|22,45|6,33|20,6",
"Operator": "admin",
"Reserved1": "",
"CRC": "123123"}

And it also returns the second camera's image:

{"StatusCode":0,
"StatusMessage":"",
"UnitID":"",
"BranchID":"0",
"Barcode":"",
"Date":"30.10.2023",
"Time":"11:05:59",
"MeasurementID":"911",
"ImageBase64":"",
"SerialNumber":"272000",
"CRC":"59042",
"ImageID":1}

And returns a similar JSON data if operation failed:

{"StatusCode":-2,
"StatusMessage":"Measurement canceled.",
"Width":"0.0",
"Length":"0.0",
"Height":"0.0",
"DimWt":"0.0",
"RealVolume":"",
"Weight":"",
"UnitID":"",
"BranchID":"",
"Barcode":"",
"BarcodeType":"",
"BarcodeSource": "",
"Date": "",
"Time": "",
"MeasurementID": "",
"ImageBase64": "",
"SerialNumber": "160122",
"DimUnit": "cm",
"WeightUnit": "kg",
"IsRegular": 1,
"ObjectRGBCoordinates": "",
"Operator": "",
"Reserved1": "",
"CRC": "123123"}

Accepted Requests (Commands) at BeeVision Web Service API

Available at http://*<device_ip>*:27018/beevisionservice/*<command>*

Command Name	HTTP Method Type	Brief Description
/measure	GET	In non-automatic trigger modes, the measure command triggers a new measurement and returns results. Image field in the results is left empty. Barcode can be passed with the command: Example: /beevisonservice/measure?barcode=1234567 If automatic trigger is selected, the latest measurement result is returned.
/captureMeasure	GET	In non-automatic trigger modes, captureMeasure command triggers a new measurement and returns results with the image data encoded as base64 string. Barcode can be passed with the command: Example: /beevisonservice/captureMeasure?barcode=1234567 If automatic trigger is selected, the latest measurement result is returned.
/getLastResult	GET	Gets the latest result. Does not trigger a new measurement. Image field is empty.
/getLastImageAndResult	GET	Gets the latest result and image. Does not trigger a new measurement.
/startCamera	GET	Starts 3D camera and returns OK message
/stopCamera	GET	Stops 3D camera and returns OK message

/calibrate	GET	Performs calibration and returns calibration success status. Does not work if SW is sealed, a corresponding error message is returned.
/getSerial	GET	Returns the serial number of the BeeVision dimensioner. Has no effect on measurement parameters or data.
/getSWVersion	GET	Returns the version number of the Volumizer SW. Has no effect on measurement parameters or data.
/getCalibrationSettingsFile	GET	Returns calibration settings. Has no effect on measurement parameters or data.
/setCalibrationSettingsFile	POST	Overwrites calibration settings. It is advised to get settings first with getCalibrationSettingsFile command, modify settings and resend them with setCalibrationSettings command Does not work if SW is sealed, a corresponding error message is returned.
/getUserSettingsFile	GET	Returns user settings. Has no effect on measurement parameters or data.
/setUserSettingsFile	POST	Overwrites user settings. It is advised to get settings first with getUserSetttingsFile command, modify settings and resend them with setUserSettingsFile command Has no effect on measurement parameters or data.
/getMeasurmentSettingsFile	GET	Returns the measurement settings file. Legally relevant parameters are stored in this file. Has no effect on measurement parameters or data.

/setMeasurementSettingsFile	POST	Overwrites measurement settings file. It is advised to get settings first with getMeasurementSettingsFile command, modify settings and resend them with setMeasurementSettingsFile command Does not work if SW is sealed, a corresponding error message is returned.
/resetDevice	GET	Reboots the device. Has no effect on measurement parameters or data.
/checkForUpdates	GET	Checks for Volumizer SW update and returns an UpdateExists Boolean indicating the check result.
/updateVolumizer	GET	Updates Volumizer. CheckForUpdates must be run in prior to this command
/getRecordsFile	GET	Returns the results of saved previous measurements. Has no effect on measurement parameters or data.
/getEthernetSettings	GET	Returns Ethernet settings. Has no effect on measurement parameters or data.
/setEthernetSettings	POST	Overwrites Ethernet settings. Required fields in JSON data are: interfaceName: Name of the ethernet interface if more than one available. Default name is “Ethernet”. Run “getEthernetSettings” first to get interface name. dynamicIP: dynamic or static ip1: first 3 digits of IP ip2: second 3 digits of IP

		ip3: third 3 digits of IP ip4: fourth 3 digits of IP gateway1: first 3 digits of gateway gateway2: second 3 digits of gateway gateway3: third 3 digits of gateway gateway4: fourth 3 digits of gateway subnet1: first 3 digits of subnet subnet2: second 3 digits of subnet subnet3: third 3 digits of subnet subnet4: fourth 3 digits of subnet dns1: first 3 digits of dns dns2: third 3 digits of dns dns3: third 3 digits of dns dns4: fourth 3 digits of dns Example JSON data: `{"interfaceName":"Ethernet","dynamicIP":"static","ip1":"10","ip2":"2","ip3":"1","ip4":"110","subnet1":"255","subnet2":"0","subnet3":"0","subnet4":"0","gateway1":"0","gateway2":"0","gateway3":"0","gateway4":"0","dns1":"192","dns2":"168","dns3":"1","dns4":"1"}` If you change IP address with this command, do not forget to update the address of the BeeVision dimensioner in your program Has no effect on measurement parameters or data.
/getWifiSettings	GET	Returns Wi-Fi settings Has no effect on measurement parameters or data.

/setWifiSettings	POST	Overwrites Wi-Fi settings. Same JSON fields as in setEthernetSettings command are required with this POST method If you change IP address with this command, do not forget to update the address of the BeeVision dimensioner in your program Has no effect on measurement parameters or data.
/scanWifiNetworks	GET	Starts a Wi-Fi scan and returns available Wi-Fi networks. This operation takes longer than 4 seconds Has no effect on measurement parameters or data.
/connectToWifi	POST	Connects to the given network name. JSON data must include “network” and “password” key and corresponding values Has no effect on measurement parameters or data.
/downloadRecordsFile	POST	Downloads the previously saved results as an XML file. Requires From, To and Download All fields as in the following example. `{"DownloadAll":1,"From":"","To":""}` If DownloadAll is 1, then whole file is downloaded, otherwise results between given dates are downloaded. From and To parameters date and time format should be like following yyyy-MM-ddThh:mm 2019-12-25T19:00 Has no effect on measurement parameters or data.
/downloadBatchRecordsZip	GET	Downloads a zip file containing group measurement results

		Has no effect on measurement parameters or data.
/setExternalBarcodeResult	POST	Send barcode result data to the device. Required fields in JSON data are: BarcodeList that consists of following nested fields: Barcode BarcodeType ImageBase64 An example JSON data: `{ "BarcodeList":[{Barcode:"1231231",BarcodeType:3}],"ImageBase64":"" }` Has no effect on measurement parameters or data. This function is not supported in static BeeVision dimensioners.
/setExternalBarcodeImage	POST	Send an image of the package. Required fields in JSON data are: ImageBase64 Has no effect on measurement parameters or data. This function is not supported in static BeeVision dimensioners.
/getDateAndTime	GET	Returns the date and time of the device in the following scheme: `{"StatusCode":0,"StatusMessage":"Operation successful","Date":"22/05/2019","Time":"00:27:07"}` Has no effect on measurement parameters or data.

/setDateAndTime	POST	Overwrites the device date and time. It is recommended to get date and time data first with getDateAndTime, modify the data and set it with setDateAndTime Has no effect on measurement parameters or data.
/downloadImagesZip	GET	Downloads a zip file containing the images that device saved so far. Same JSON fields as in downloadRecordsFile command are required with this POST method Has no effect on measurement parameters or data.
/deleteMeasurementImages	GET	Deletes the images saved in the device. Has no effect on measurement parameters or data.
/deleteMeasurementRecords	GET	Deletes the measurement results saved in the device. Does not work if SW is sealed, a corresponding error message is returned.
/getDeviceInfo	GET	Returns the device related information as provided below. {"StatusCode":0,"StatusMessage":"Operation successful","DeviceModel":"BeeVision 3DT270","SWChecksum":"12d6c1d5322723d59fe81731627ba4fe","CertificateNumber":"N/A","MinWidth":"10","MinLength":"10","MinHeight":"10","MaxWidth":"80","MaxLength":"80","MaxHeight":"80","WidthAccuracy":"1","LengthAccuracy":"1","HeightAccuracy":"1","CertificationStatus":"0"} Has no effect on measurement parameters or data.
/printZPLLabel	POST	Send a ZPL formatted message to print a label using connected printer. Sample provided below: { "ZPLMessage":"^XA ^FX Top section with company logo, name and address. ^CF0,60 ^FO50,50^GB100,100,100^FS ^FO75,75^FR^GB100,100,100^FS ^FO88,88^GB50,50,50^FS ^FO220,50^FD3DTIM Elektronik^FS ^CF0,40

		^FO220,100^FDODTU^FS ^FO220,135^FDAnkara 06800^FS ^FO220,170^FDTurkey^FS ^FO50,250^GB700,1,3^FS ^XZ" }
/downloadAllLogs	GET	Compresses all log files into a .zip file and sends the zip file.
/getMeasurement	GET	Queries measurement records depending on the GET parameter and sends the results as JSON. Accepted parameters are : *barcode* example: /beevisonservice/getMeasurement?barcode=1234567UZDWSTEST003 *measurementId* example: /beevisonservice/getMeasurement?measurementId=3 *date* example: /beevisonservice/getMeasurement?date=2021-12-14 *includeImages* example: /beevisionservice/getMeasurement?date=2023-01-30&includeImages=false An example of returned JSON : {"results":[{"Width":"10.000000","Length":"10.000000","Height":"10.500000","DimWt":"0.25","RealVolume":"0.000000","Weight":"450000","UnitID":"-1","BranchID":"-1","Barcode":"","BarcodeType":"","BarcodeSource":"N/A","Date":"06.12.2021","Time":"17:30:42","MeasurementID":"165","ImageBase64":"","SerialNumber":"4V6KQ13","DimUnit":"mm","WeightUnit":"gr","IsRegular":0,"ObjectRGBCoordinates":"0.000000,0.000000|0.000000,0.000000|0.000000,0.000000|0.000000,0.000000","Operator":"","Reserved1":""}]}

9 Serial Interface

BeeVision dimensioners provide a serial (RS232) data sharing option to transfer measurement results to a computer or a PLC. Users may freely select the programming language to communicate with Volumizer over RS232 port.

There are 2 options to get the results via serial interface: BeeVision dimensioner can send the results automatically with every measurement or the last results can be pulled by sending the “get#” command to the BeeVision`s RS232 port.

An example measurement result message:

0;;32.0;12.0;44.0;5.60;16896;3.15;1547852;cm;kg;27;120;10976

Serial data scheme is as follows:

StatusCode;StatusMessage;Width;Length;Height;DimWt;RealVolume;Weight;Barcode;DimUnit;WeightUnit;MeasurementID;DeviceSerial;CRC

To connect a BeeVision dimensioner to a computer using serial connection follow these steps:

- Locate serial port on the back of BeeVision dimensioner labeled as I/O and connect one end of the serial cable to it.
- Locate a free serial connection port at the back of your computer and connect the other end of the serial cable to the port.

⚠ Your computer may not have a serial port. If it does not, you can use a USB-to-serial adapter for connection.

- Tighten the screws on each connector at both ends of the cable to keep them secure.

Setting BeeVision serial data sharing:

- On Main menu go to Integration Page -> RS232 Tab
- You can select a COM port to use for data sharing. The default selection is COM1.

- Select the baud rate of your choice. 9600 is recommended.

⚠ Baud rates must be the same on the BeeVision dimensioner and your computer

- (Optional) If you want to send results automatically with every measurement, check the "Send Results Automatically" option.
- (Optional) You can select a character to append at the end of the data. The default is CR (carriage return) character. Options are nothing, CR, LF, CR-LF, and end-of-text character
- Click connect. If you see the green led and status connected, the connection is established.

⚠ If you get 'Port occupied' warning, check other setting pages that use the serial port. See SCALE SETTINGS PAGE, SCANNER SETTINGS PAGE

⚠ If the default serial port of BeeVision dimensioner is occupied for scale connection, you may connect a USB-serial converter to one of the USB ports, please ask for supported converters by contacting info@beevision.ai

Setting up your computer for serial data sharing:

- Open serial port with the same baud rate that you set on the BeeVision device
- To test the connection type "get#" to port. If the device returns results, the connection is successfully established.

Field Name	Index	Brief Description
StatusCode	0	• 0: success, 1: Pallet height included. Negative values: failure (-3: Object is not completely within the measurement area, -4: Measurement was cancelled, -8: Scale is not connected, -11: Dimensions are too large,

		-12: Dimensions are too small, -15: Device temperature is too high, -98: Measurement ignored)
StatusMessage	1	Empty when successful otherwise error explanation
Width	2	Width of the measured object
Length	3	Length of the measured object
Height	4	Height of the measured object
DimWt	5	Dimensional weight of the measured object. Calculated using the set dimensional weight coefficient/divisor
RealVolume	6	Real volume of the measured object
Weight	7	Weight value coming from the scale that is connected to the BeeVision dimensioner
Barcode	8	Barcode of the object if barcode data is available otherwise empty
DimUnit	9	Unit of the dimensions provided within the result
WeightUnit	10	Unit of the weight provided within the result
Measurement ID	11	Unique ID of the measurement
Serial Number	12	Serial number of the device
CRC	13	CRC16 checksum of the whole message excluding this value

10 Server Data Sharing

BeeVision dimensioners include an server data sharing option to transfer measurement results to a remote FTP or SAMBA drive.

Depending on the user selection, the measurement results are saved to remote drive either every hour or once per day at a specified time. The settings dialog box is shown in Figure 16.

> ⚠ "Keep measurement records" option must be enabled to be able to use remote server data sharing.

Server sharing file format is the same as measurement records CSV file format. Measurements are saved to a file with the following naming scheme:

firstID_lastID_date_time_ftpRecords.xml

Images are also saved if they exist. Images are zipped as a single file with the following naming scheme:

firstID_lastID_date_time_ftpImages.zip file.

> ⚠ "Save measurement images internally" option must be enabled to be able to share measurement images with an remote drive.

Follow the steps below to enable BeeVision FTP/SAMBA drive data sharing:

- On Main menu go to Integration Page -> Server Sharing Tab
- Select the drive type: FTP or Samba
- Enable "Send results to a server" option.
- Enter the desired path of the remote drive
- Set the correct port number
- Enter username and password for authentication
- Click the "Check Connection" button. Connection successful dialog box should appear to be able to send records.

⚠ If you get the “Connection failed! Please check parameters” warning, check the address, port, username, and password and click on the “Check Connection” again.

11 User Management

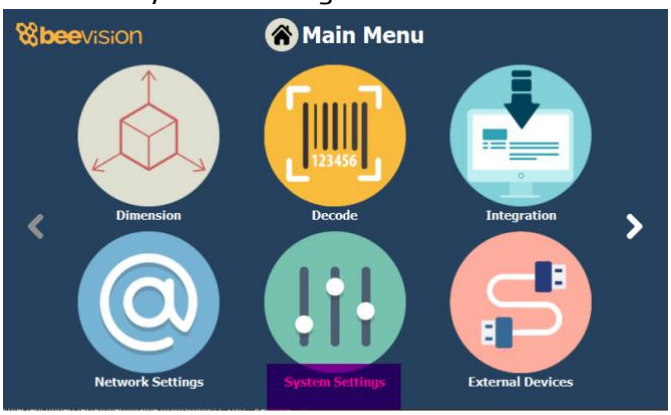
BeeVision provides an easy user management system. With user management, the measurement logs can be labeled with respect to user identification for who is using the device.

With the user management system, the admin can add and remove users. Also can change the passwords of the users. Non-admin users can identify themselves with their barcodes via hand barcode scanners.

- Admin users can create users and generate barcodes for each user.
- Admin can reach the user settings from the device itself or Web UI.
- When a user logs in, s/he becomes the active user.
- The active user’s ID is displayed on the measurement page and measurement output results.

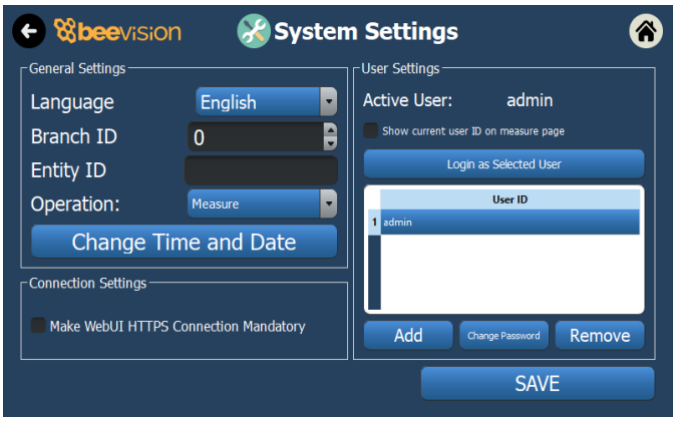
a. From Device Screen

1. Go to the System Settings



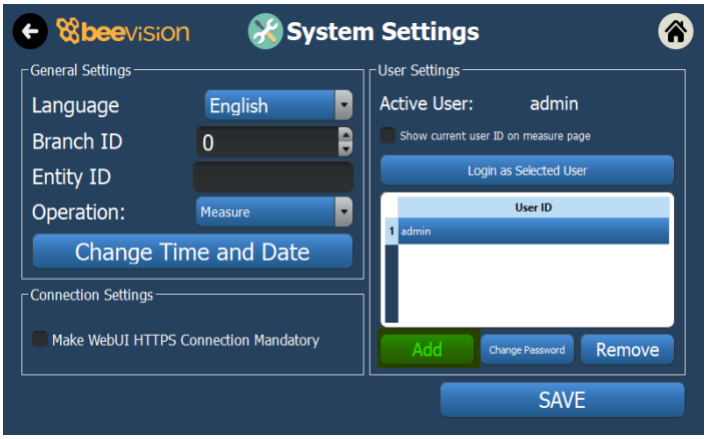
2. Enter your Admin password if asked.

3. On the User Settings section you can see user IDs that have been created on the user list. (If you open it first time it only contains admin as user)

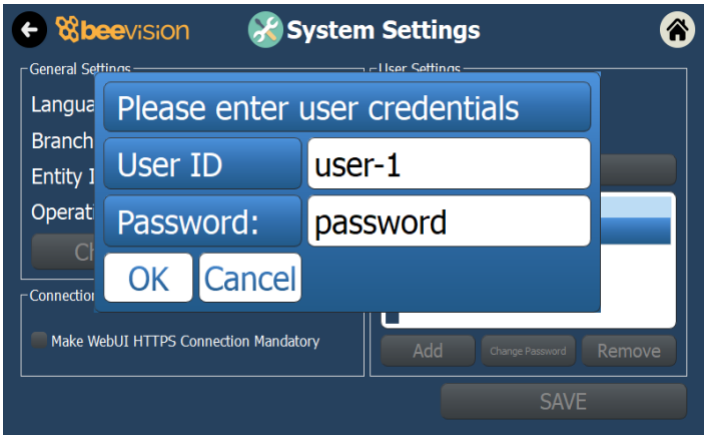


i. Creating a New User

1. Click the Add button.



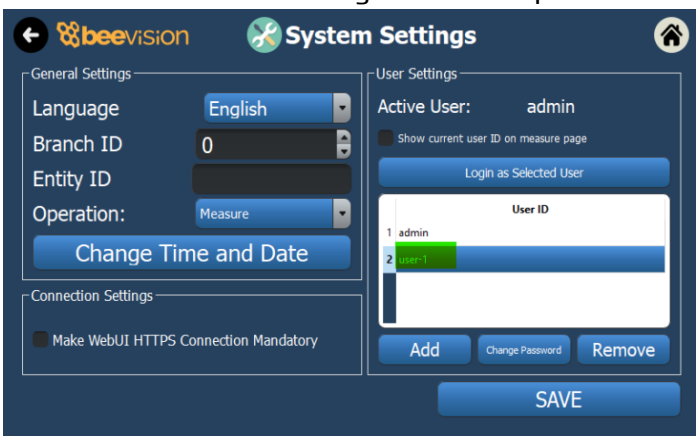
2. Enter the User ID (you can type as a name or number) and Password.



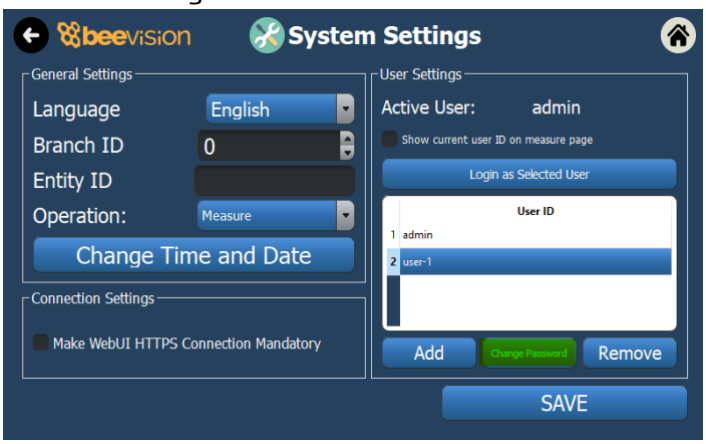
3. Click SAVE.
4. Now the new user is created.

ii. Changing User Password

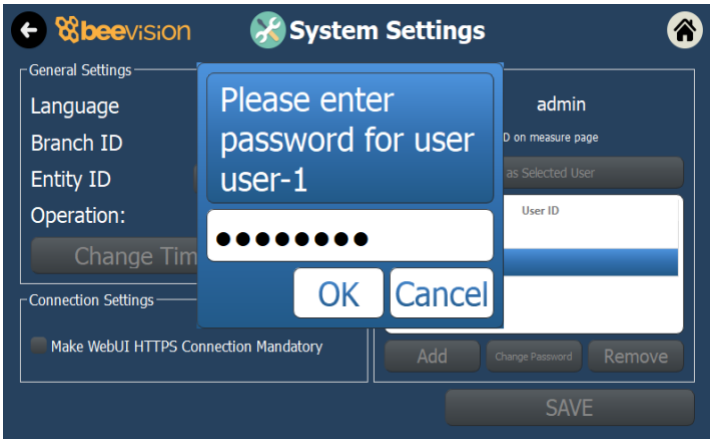
1. Click and select the user that you want to change password from the user list. You can also change the admin password.



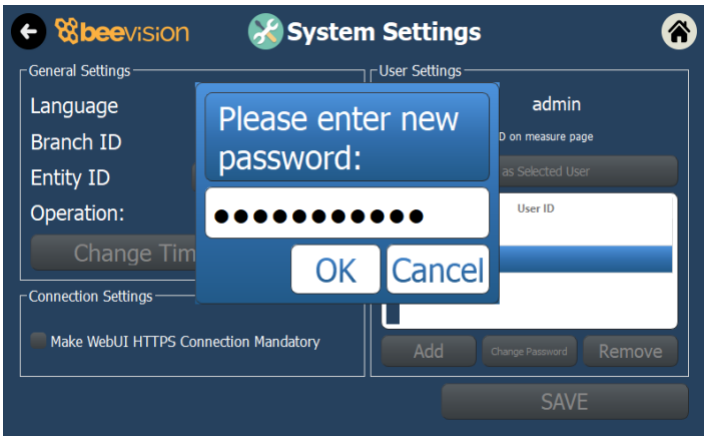
2. Click the Change Password button.



3. Type the current password, click OK.



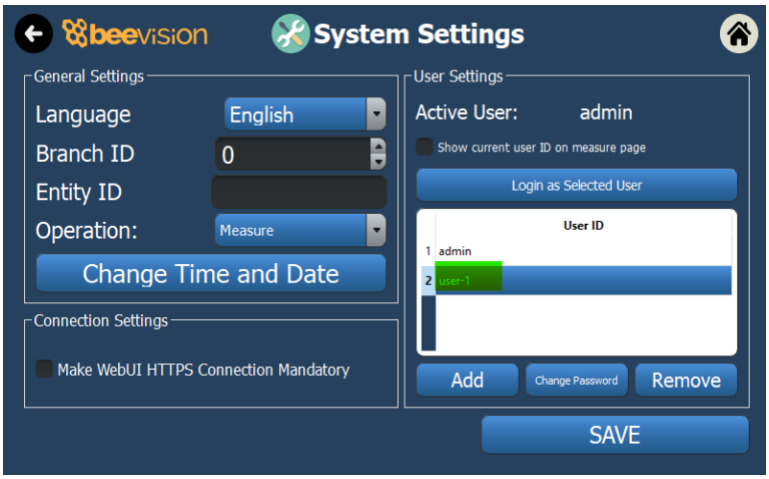
4. Type the new password, click OK.



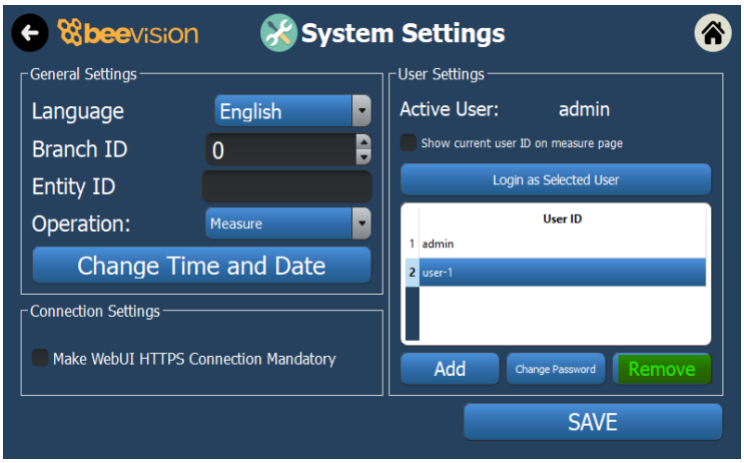
5. Type the new password again, click OK.
6. Click SAVE.
7. Now the password has been changed.

iii. Deleting an Existing User

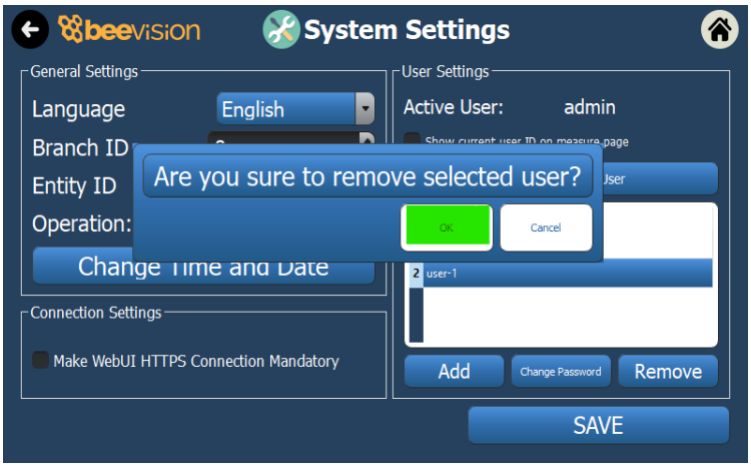
1. Click and select the user that you want to remove from the user list. You can not remove admin.



2. Click the Remove button.



3. It will ask “Are you sure to remove selected user?”, click OK.

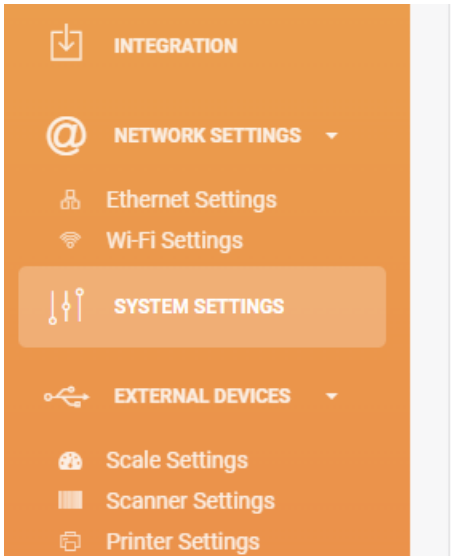


4. Click SAVE.
5. Now the user is removed.

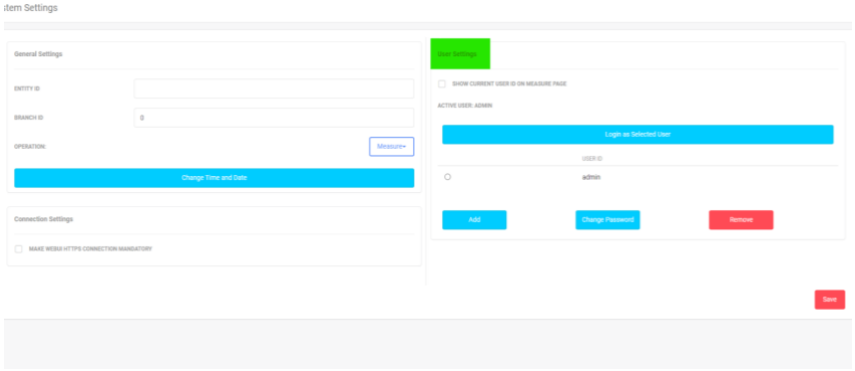
b. From Web UI

1. To go to the Web UI type the local IP of the device to the address bar of your browser.
2. Type your admin password if asked.

3. Go to the System Settings from tabs.

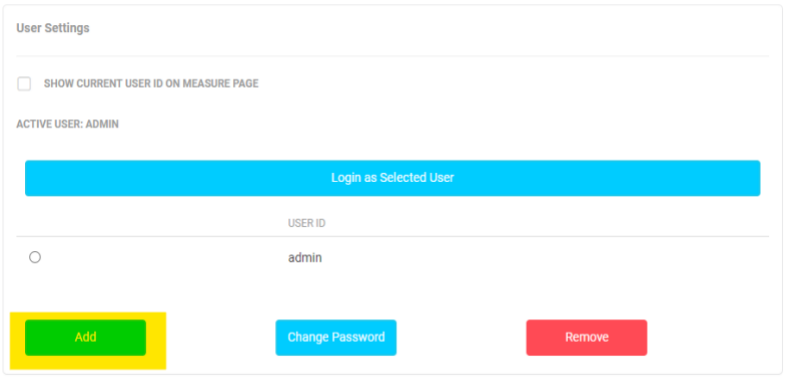


4. On the right side you can see the User Settings section. It contains active users, users that have been created (if you open the device for the first time you will only see admin user).

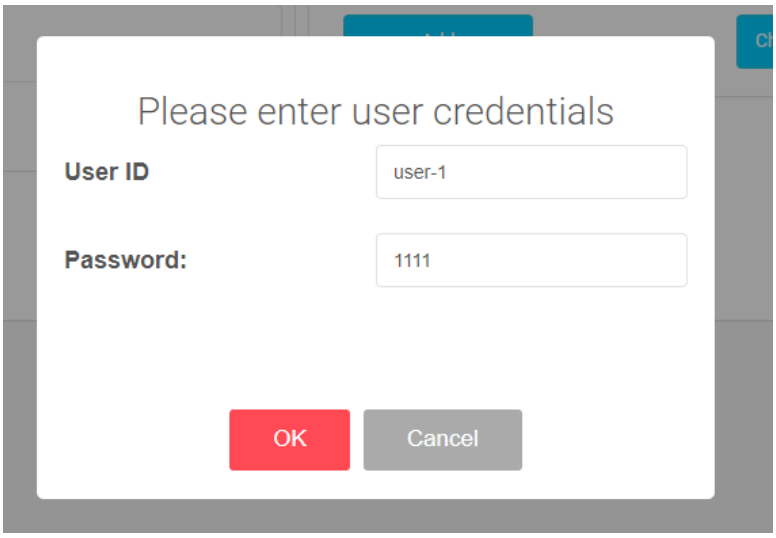


i. Creating a New User

1. Click Add.



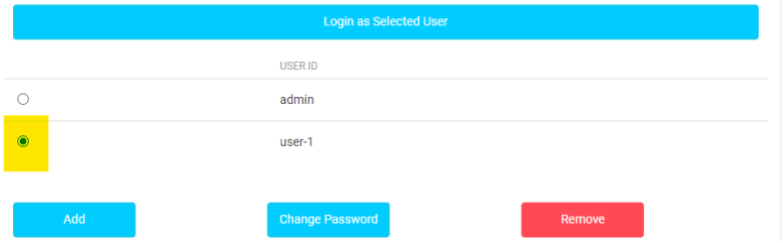
2. Enter the User ID (you can type as a name or number) and Password.



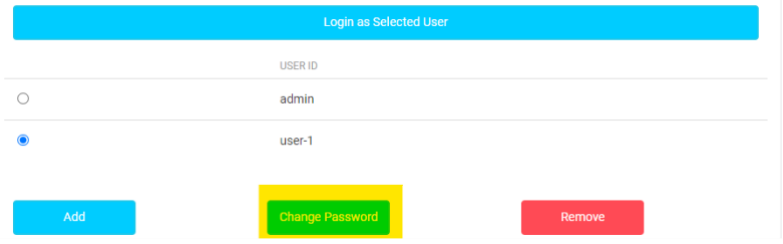
3. Click SAVE.
4. Now the new user is created.

ii. Changing User Password

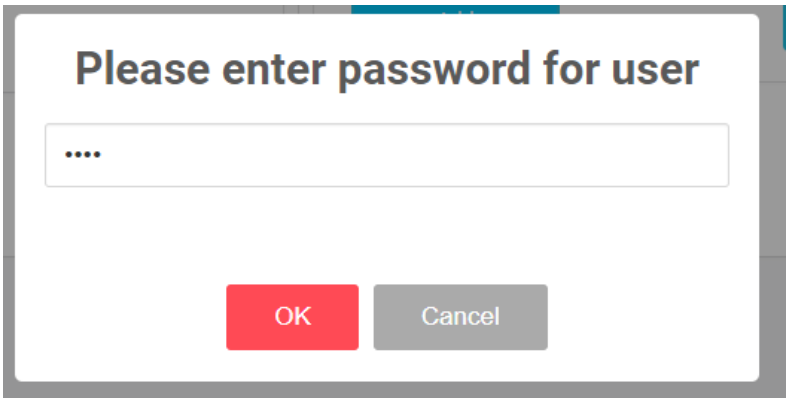
12. Click on the check box and select the user that you want to change password from the user list. You can also change the admin password.



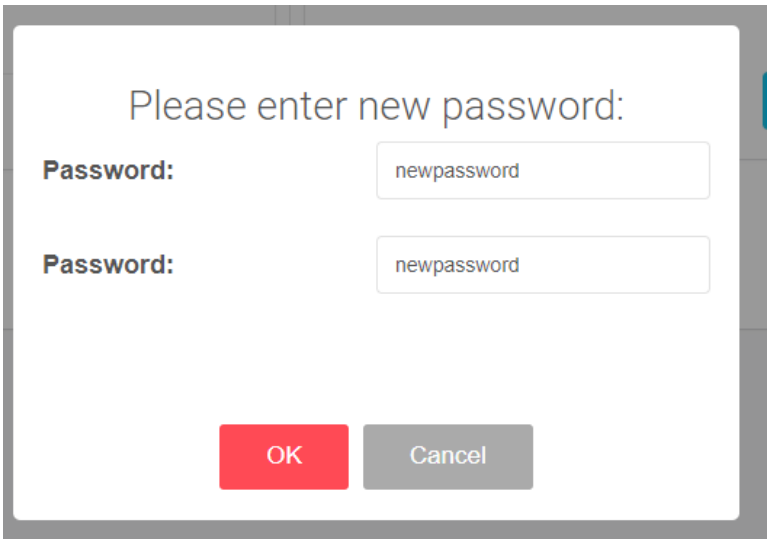
13. Click the Change Password button.



14. Type the current password, click OK.



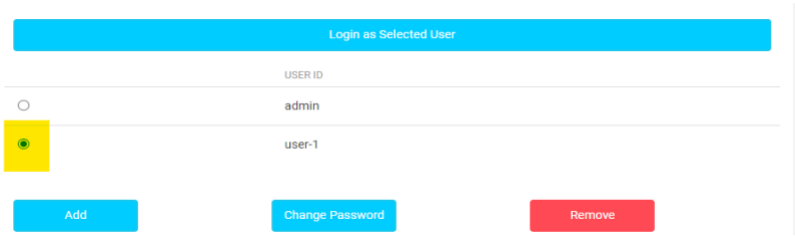
15. Type the new password twice, click OK.



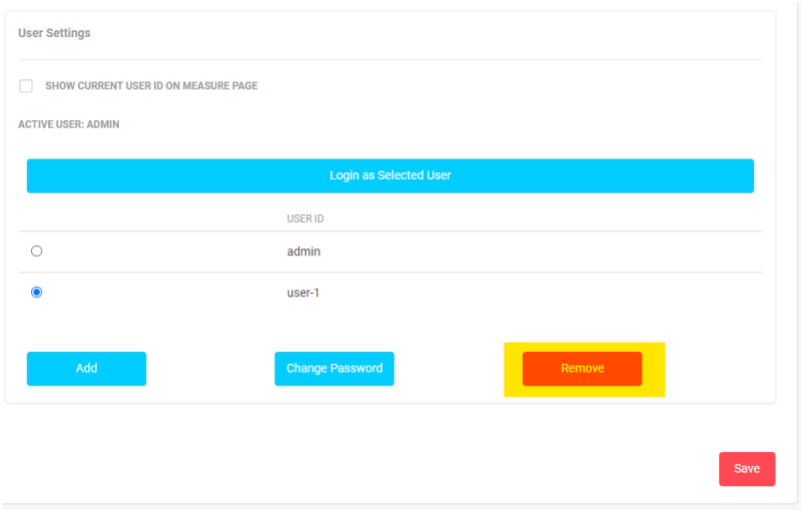
16. Click SAVE.
17. Now the user password is changed.

i. Deleting an Existing User

1. Click on the check box and select the user that you want to remove from the user list. You can not remove admin.



2. Click the Remove button.



3. It will ask “Are you sure to remove selected user?”, click Yes.
4. Click SAVE.
5. Now the user is removed.

b. Generating Barcodes for Users

➔ With the barcode created by the admin, other users can log in to the system with a hand barcode scanner. Admin or a manager should distribute the barcodes to the other users.

➔ The users should scan their barcodes before using the device. After scanning their barcodes, the device immediately asks for the user's password. The user can type the corresponding password on the device's touchscreen.

Barcode generation should be generated as user ID. For example, if the user ID is “user-1” then the barcode generator should generate a barcode from the “user-1” as a string. You can see an example below.

Also you can generate a barcode for the password. You need to scan it after scanning the userID barcode. You can see an example barcode for password below.

For barcode generation, you can use free barcode generator services from the internet. The barcode should be standard Code-128 format.

A Appendix

i. Complete List of Informatory Status Messages

No Object: Indicates there is no object in the field of measurement.

Object out of measurement area: Indicates that some part of the freight placed under the device is outside of the field of measurement that is set in the calibration page.

Dimensions too large/small: Indicates that a dimension (width, length or height) of the freight under the device is small or large according to the limits that are set in the settings page.

Multiple objects in measurement area: Indicates that there are two or more freights in the measurement area and the device can recognize the space between multiple objects.

Group ID is not set. Start or continue a group: Appears on the group measurement page when the user presses the Measure button without starting a new group or proceeding to a previous group.

Camera is not on. Turn on camera: Indicates that the camera inside the device is not working. Just press Start button on the calibration page. If the problem continues, contact the manufacturer.

Could not connect to camera: Indicates that the camera inside the device is not working. The device has to be restarted. If the problem continues, contact the manufacturer.

Calibration failed. Try again: Indicates there is no planar surface in the field of measurement. Make sure that there is no object in the field of measurement during the calibration process.

This object already measured: This error is received when "Don't measure again until object removed" option is enabled and the scale result is not reset to "0" after a measurement is performed.

Measurement canceled: A problem might occur during the measurement such as obstruction of the view of the BeeVision device or when there is no object to measure in the field of measurement. In this case, measurement is canceled and the user is warned.

Object is not stable: This error is received when "Wait until object is stable" option is enabled and the object is not stable during the interval, which is set as the "Scale Stability Duration (ms)"

Pallet height included: This message indicates that if the user disables the "Include Pallet in Measurement" option in the Measurement Settings menu and the software cannot detect a wooden/plastic pallet under the product, it will not be able to exclude the pallet from measurement. As a result, the pallet height will be included in the measurement. If the product does not a have pallet, this message will still appear if the "Include pallet in measurement" option is selected.

Calibration Completed: Shown when calibration operation was successful.