beevision

BeeVision 19x Dynamic Dimensioning System

User Manual

Version 1.4.0

3DTIM

BeeVision 19x systems carry high voltage and should only be serviced by a qualified person.

Observe precautions for handling or installing BeeVision 19x systems on site.

Depending on the model either 220V / 50 Hz or 380V / 50Hz is required for 19x systems and **grounding** is also a must for proper operation!

If you do not know the operation voltage rates of your system, get in touch with info@beevision.ai

C Contents

1 Overview

BeeVision 19x Dynamic Dimensioner system consists of in-motion dimensioner, optional scale, and optional barcode reader.

This document describes the installation, calibration, and usage of the BeeVision™ 19x Dynamic Dimensioner System.

BeeVision dimensioners are equipped with Volumizer™ software that enables users to easily calibrate the device, perform measurements and share results. Users can use the BeeVision Dimensioners with Volumizer-GUI with the industrial panel-PC delivered within the system.

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

BeeVision dimensioners are designed as stand-alone devices. There is no need to have a PC to get the results from BeeVision devices or install separate software.

2 Installation

BeeVision dynamic system is shown in the following figure. If the system includes the optional barcode reader, the reader-frame should be assembled after the delivery of the system, the rest of the system is delivered at a ready-to-use state. Please, refer to the Installation Manual for detailed instructions.

1. Panel-PC
2. Barcode Reader Frame
3. Conveyor Panel and Buzzer
4. Dimensioning Frame
5. Barcode Reader
6. Feed Conveyor
7. Measurement Conveyor

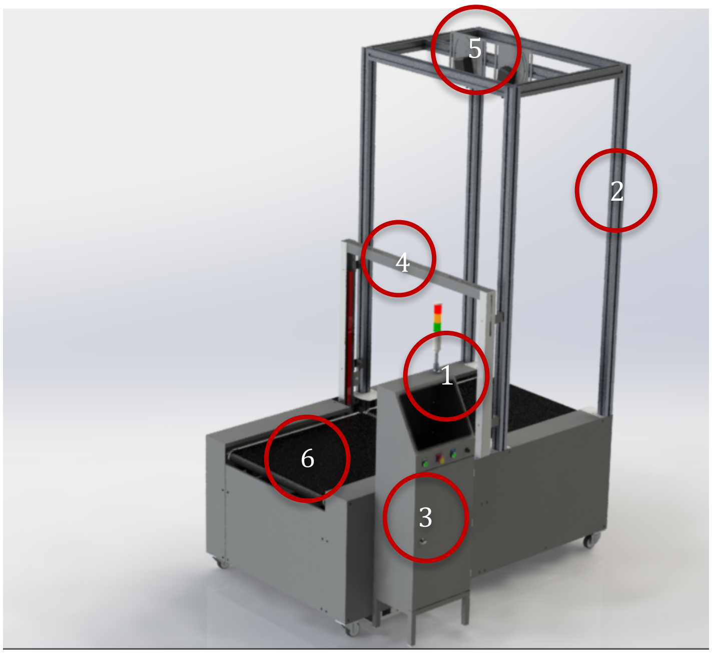


FIGURE 1 BEEVISION 19X DYNAMIC SYSTEM

BeeVision 19x may consist of 2 or 3 conveyors depending on the user choices. The first conveyor is the feed-conveyor. The second conveyor is the weighing conveyor and, if optionally included in the system, the last conveyor is the exit conveyor as shown in Figure 2 and Figure 3.

BeeVision 19x ensures that packages are fed one-by-one to the second conveyor from the feed conveyor. **Packages should be minimum 20cm apart** from each other before they are fed to the feed conveyor of the system as illustrated in Figure 4. Please refer to the **Auto Feeding** section in the Operation chapter for more details.

It is recommended to install conveyors before the feed conveyor and after the exit conveyor to provide space for better handling of the packages.

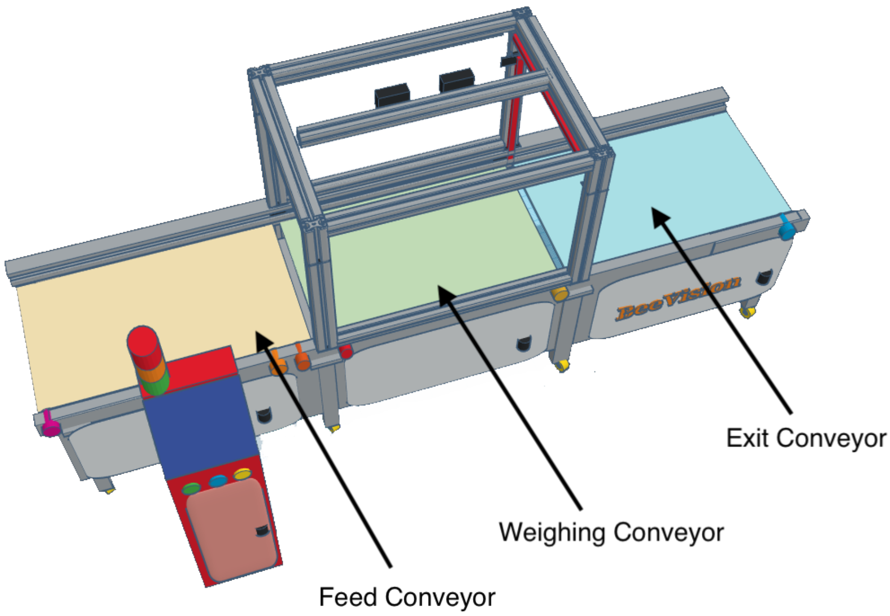


FIGURE 2 BEEVISION 19X SYSTEM WITH 3 CONVEYORS

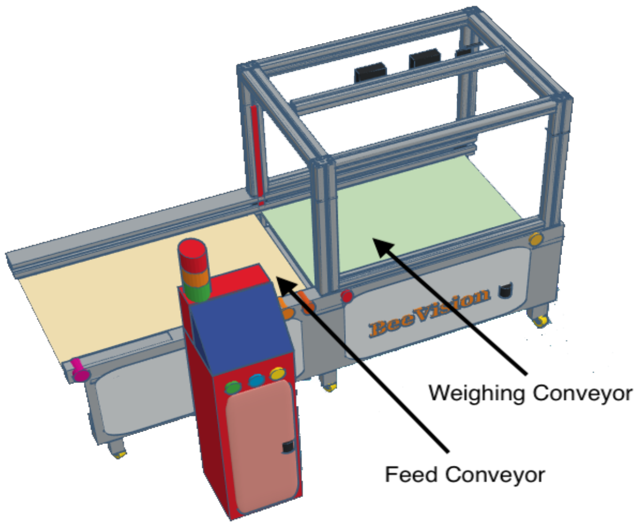


FIGURE 3 BEEVISION 19X SYSTEM WITH 2 CONVEYORS

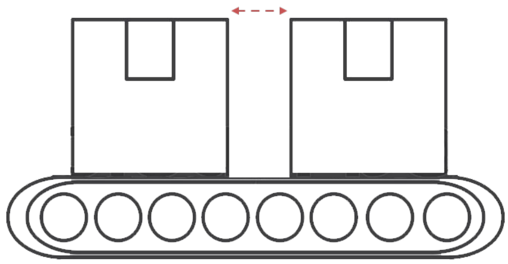


FIGURE 4 ILLUSTRATION OF REQUIRED DISTANCE BETWEEN OBJECTS

3 Connection Ports

BeeVision 19x systems are delivered at a ready-to-use state. Thus, there is no need for any connection except the power plug. If optional BeeVision 200 barcode readers are included within the system, their cables should be connected as indicated in the installation manual.

The panel-PC serves as a connection hub for the system. Figure 5 below shows the connection ports that are located on the backside of the panel-PC.

FIGURE 5 BACK SIDE OF THE BEEVISION 19X PANEL PC

2 Serial Ports (RS232): External barcode scanners can be connected to one of the serial ports.

3 USB Ports: There are three USB ports. Two USB ports are reserved for dimensioner sensor connections.

2 Ethernet Ports: One port is reserved for communication with the Programmable Logic Controller (PLC) that controls the conveyors. Other port is used for establishing communication with an external computer or server system for the data transfer.

Power Port: To supply 24V to the device. Please use adapters provided with the BeeVision dimensioner.

4 Turning the Device ON/OFF

The input mains voltage must be **220V (or 380V depending on the system) and 50Hz**. The connection must have **grounding**; otherwise, the system may not function properly. When the power cord is inserted into the power port and given mains voltage, the panel-PC is automatically turned on and will be ready for use. To start the conveyors, press the green Start button next to panel-PC.

> ⚠ If the emergency stop button is pressed, start buttons do not work. You have to release the emergency stop button and press the start button to start the conveyors of the system.

To connect the device to another computer or network for data transfer, simply connect the device to the desired network with an Ethernet cable. A detailed explanation of the connection settings is provided in the Software Guide document.

To stop the conveyors, use one of the stop buttons in the easy access buttons next to the panel-PC.

To turn off the system completely, simply unplug the power cord.

> ⚠ Do not turn off only the panel-PC, this operation is not supported.

5 Operation

The BeeVision 19x dynamic system has mainly 4 functions: dimension measurement, weight measurement, image capture, and barcode scanning. Objects are automatically fed one-by-one. Details of these operations are provided in the following sections.

Auto Feeding

BeeVision 19x ensures that packages are automatically fed one-by-one to the measurement conveyor from the feed conveyor by means of stopping and restarting the feed conveyor. **Packages should be minimum 20cm apart** from each other before they are fed to the feed conveyor of the system.

If **the object height is lower than 2cm such as in documents,** auto feeder sensors (photoelectric sensors on the feed conveyor) may not detect the object. Hence, documents and parcels should not be fed in a mixed manner. A document fed right after a parcel may be passed to the measurement conveyor earlier than usual causing "**Objects too close**" warnings. Documents and parcels should be fed as different groups, i.e. a document cannot be fed after a parcel or bag but documents can be fed after another document.

⚠ Do not feed objects with height lower than 2cm, such as documents, after non-document objects. Otherwise measurements may be interrupted.

Dimension Measurement

The BeeVision 19x system is delivered as factory-calibrated and there is no need for re-calibration after the installation at customer-site unless conveyors' speed is altered.

Dimensions of the objects are dynamically captured when they are in-motion between two conveyors. After an object leaves the dimensioning frame, its 3D representation is shown in the Measure page of Volumizer-GUI. Results are also indicated in the Measure page right after the system completes the weight measurement and barcode scan operations in the second conveyor, i.e. measurement conveyor, of the system.

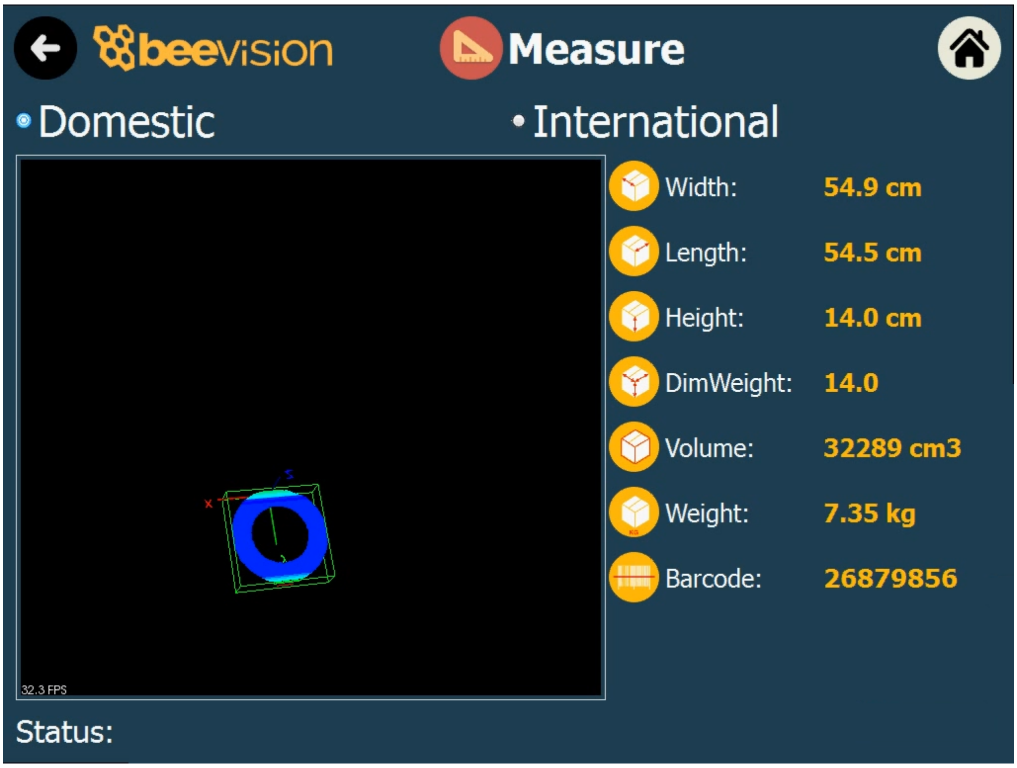


FIGURE 6 RESULTS AND 3D REPRESENTATION OF OBJECT

The conveyors must be in-motion to capture the dimensions. If the conveyors are not moving, the dimensioning process is automatically halted.

⚠ If the conveyors are stopped by the user when there is an object under the dimensioning frame, the corresponding measurement process may be disturbed. It is advised to re-feed and repeat the measurement for those objects.

Weight Measurement

The BeeVision 19x system can typically weigh objects from 100gr to 60 kg; nevertheless, these values may differ depending on the customer's requirements. Weight measurement is performed while the object is moving on the second conveyor of the system. BeeVision 19x ensures that objects are fed to the second conveyor on one-by-one basis for correct weight measurement. Customers should feed the objects to the BeeVision 19x system with minimum 20cm apart from each other for guaranteed healthy operation.

⚠ The BeeVision 19x system is delivered with shock-absorbers that prevent undesired high forces being applied on the weighing equipment during the shipment. After the delivery, please remove them to be able to weigh objects. For further details, refer to the Installation Manual.

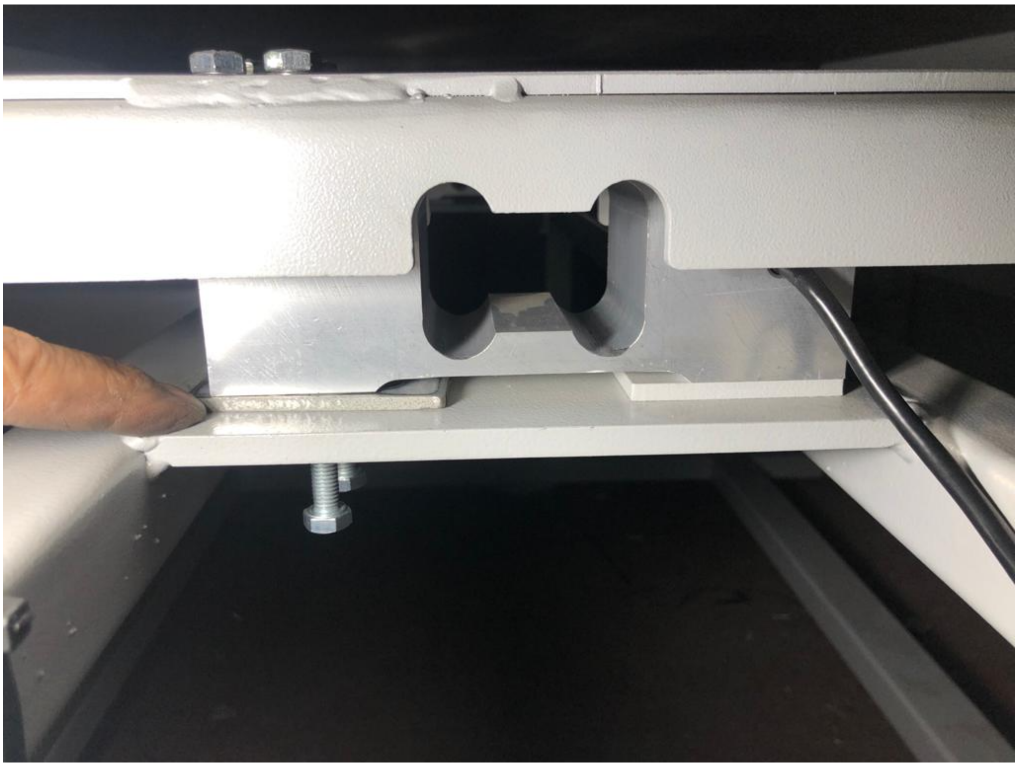


FIGURE 7 REMOVE THE PROTECTION SCREWS AND PLATES OF THE 2 LOAD CELLS BELOW THE MEASUREMENT CONVEYOR

The feed conveyor is automatically paused until the object on the second conveyor is passed to the next conveyor.

During the movement of the object on the second conveyor, there should be no external physical disturbance to the conveyors. Otherwise, measured weight value might be off from the real result.

After a successful weight measurement operation, the system does not produce a sound. If the weight measurement operation fails, a long beep sound is released.

- **Successful Weight Measurement:** No sound is released.
- **Unsuccessful Weight Measurement:** A long beep sound is released.

⚠ If the object to-be-weighed is lighter than 100gr, the system may have difficulties determining the weight of the object. In that case, weight is indicated as "ERR".

Same error may occur if the object is longer than the dimensioning limits of the system. If the system can handle objects up-to 80cm length, an object with 90cm length may cause unsuccessful weight measurement operation.

⚠ The speed of the conveyor is set according to the requirements provided with the purchase order of the system. If you would like to change the conveyor speed, please consult to info@beevision.ai and the detail instructions will be provided.

Barcode Scanning and Image Capture

Barcode scanning is performed while the object is moving on the second conveyor of the system. The system can scan barcodes independent of their location or orientation. Barcode scanning operation continues until the object completely leaves the second conveyor. The internal lightning of the barcode readers is turned on during the read operation.

- **Successful Barcode Scanning:** No sound emitted.
- **Unsuccessful Barcode Scanning: No Barcode Found:** A long beep sound is released and the conveyors are stopped right after the object leaves the measurement conveyors. Barcode result is indicated as "NOREAD" or "ERR" in the system.
    - If handheld scanning after the measurement is enabled, users may scan the barcode of the objects in case of NOREAD. After the manual scan, the conveyors will start moving automatically.

⚠ By default, in case of NOREAD, conveyors are stopped right after the object leaves the measurement conveyor. Operators may re-feed the object or remove it from the system.

If you would like to change this setting, please go to Scanner Settings page in External Devices menu and disable the corresponding option.

⚠ If an error occurs during the barcode scan operation, the barcode result is indicated as “ERR”. This may occur when adjacent objects are fed to the system too close to each other. Since the second object enters the second conveyor before the first one leaves it, an invalid operation status occurs, and the barcode scan operation is interrupted.

6 Volumizer

Volumizer is the software delivered within the BeeVision system that enables users to control the device, perform calibration and measurements. It has a graphical user interface (GUI) that can be used with panel-PC delivered within the system.

Users can navigate to pages from the main menu as shown in Figure 8.

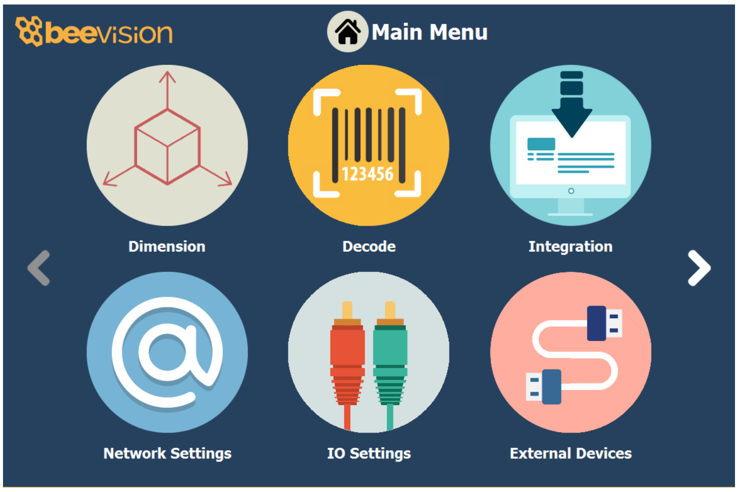
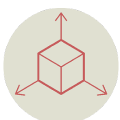
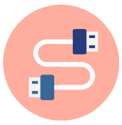
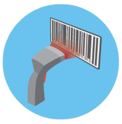
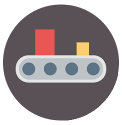


FIGURE 8 MAIN MENU OF VOLUMIZER GUI

Following pages are included in Volumizer GUI and WebUI:

	Brings up dimensioning submenu

Dimension		
	Measure	Trigger measurement and display results (Default Page)
	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 (is disabled in BeeVision 170)
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 and parameter change log

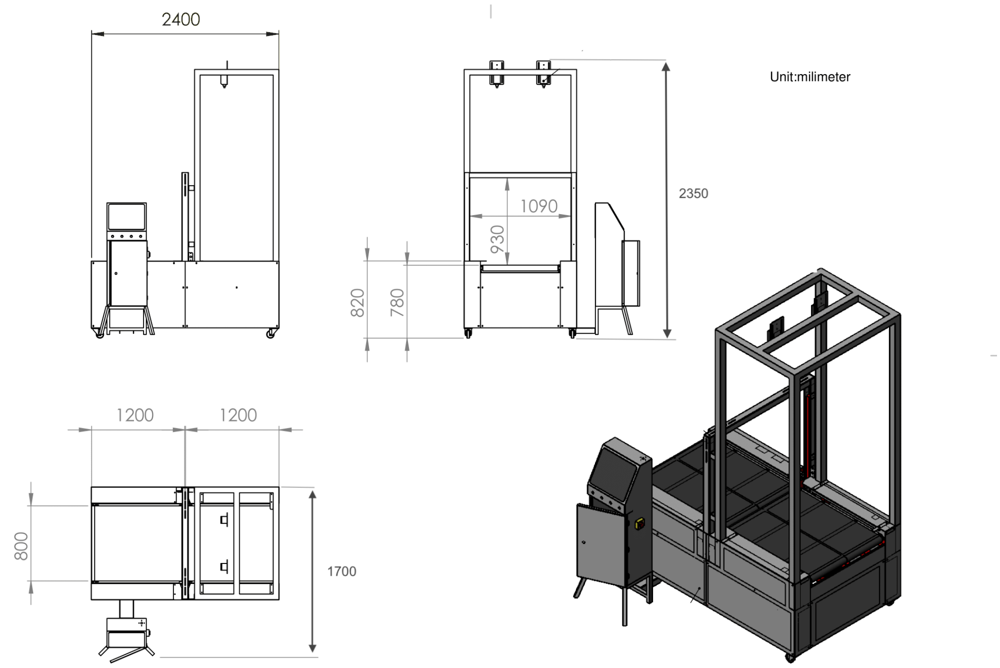
GUI Navigation Icons:

Opens up the previous upper menu page

Opens up the main menu page

To find out more about Volumizer, please refer to the Software Guide document.

7 System Drawings



Notes