# New bucket configuration

Adding a new bucket is essentially creating a new configuration based on an existing one.
The process of configuring a new bucket is shorter than configuring a new machine.
Before adding a new bucket configuration, an appropriate location and tools should be prepared.
Creating a new bucket configuration involves installing a sensor on the bucket.
It is recommended to perform the configuration in a garage or hall, on a hardened and level surface.
If it is not possible to perform the configuration indoors, it is recommended to choose a flat, hardened outdoor area with reduced lighting conditions (e.g. heavy cloud cover, after sunset), so that during the measurements the light lines generated by the cross-line laser projecting onto the excavator bucket can be clearly observed.

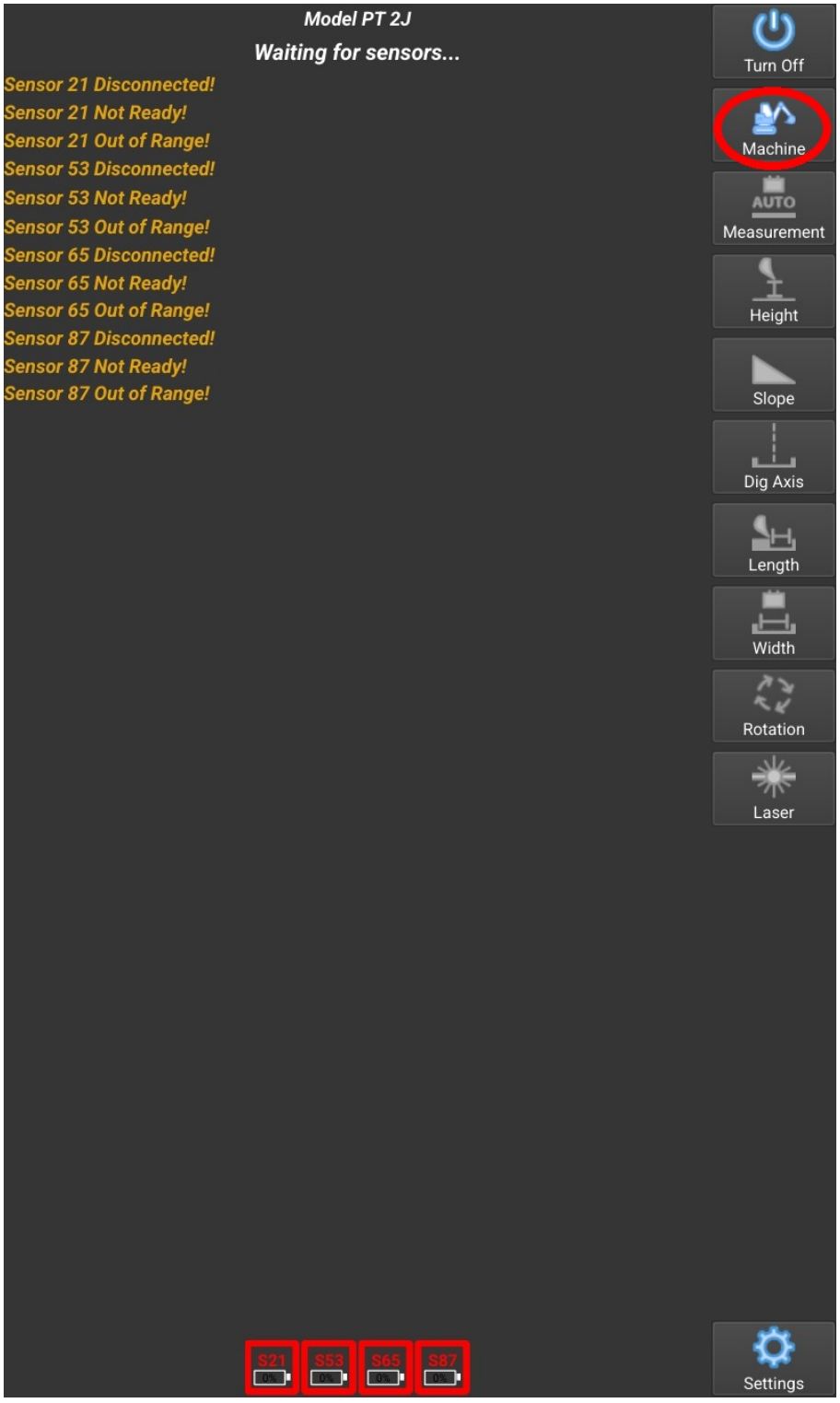
**WARNING!**
**Mounting the sensor on the bucket, depending on its size and design, may require constructing appropriate protection (e.g. welding protective covers or a protective housing) to protect the sensor from damage during operation.**
**When building such protection, make sure that the sensor is not completely enclosed in metal, as this would prevent it from communicating wirelessly with the rest of the system.**

Required tools:

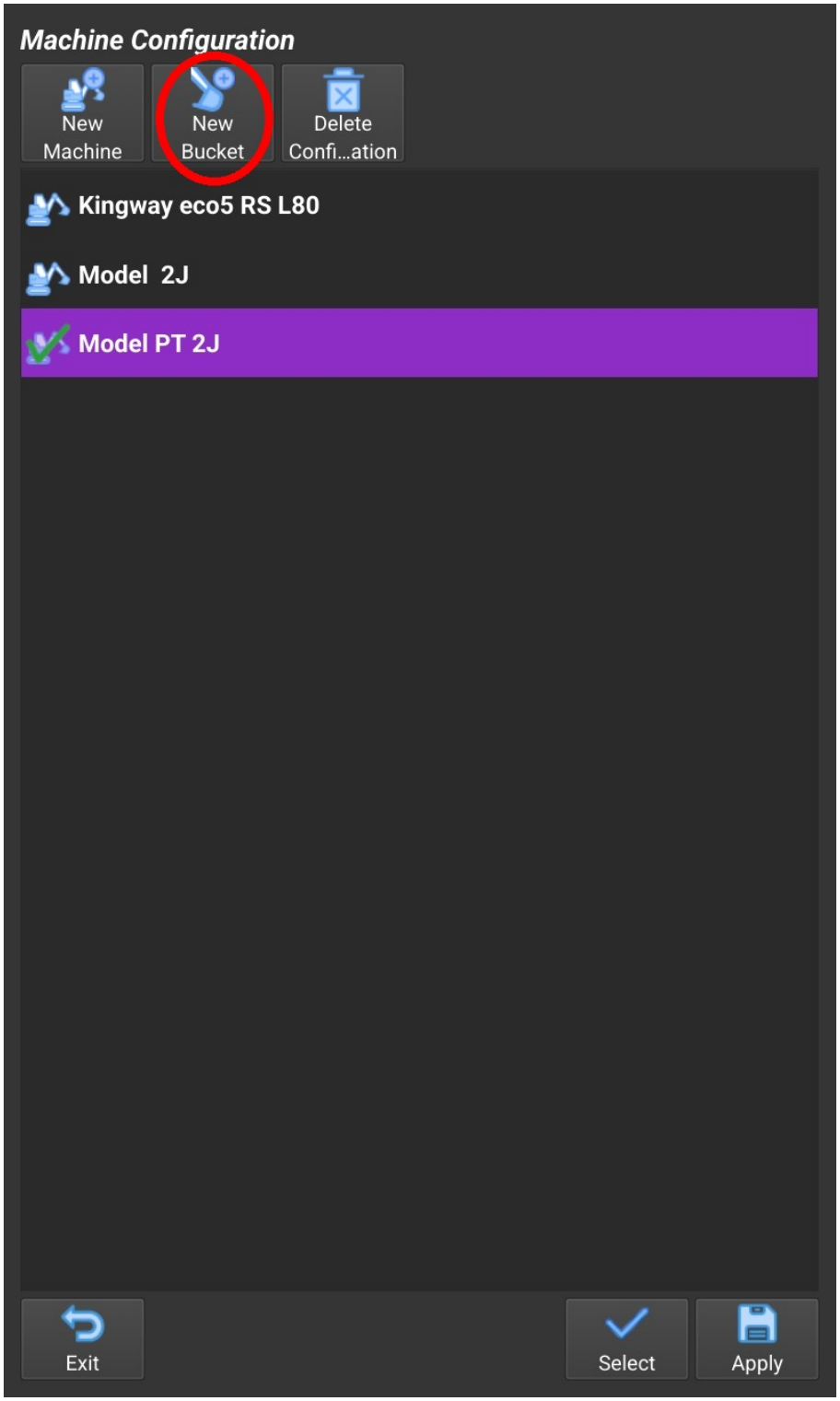
- A set of BlueDig BLE IMU Sensor units used in the current machine configuration to which the new bucket will be added (charge the batteries before starting the configuration)
- A new mounting bracket for the BlueDig BLE IMU Sensor (if the sensor is mounted on the bucket and not, for example, on a quick coupler)
- A self-leveling cross-line laser (charge the battery before starting the configuration)
- Tape measure
- Spirit level
- Cleaning cloths and degreasing agent (e.g. isopropyl alcohol, IPA)
- Permanent marker

Position the machine on a leveled surface.

To create a new bucket configuration, launch the BlueDig application and press the **Machine** button in the drop-down menu.

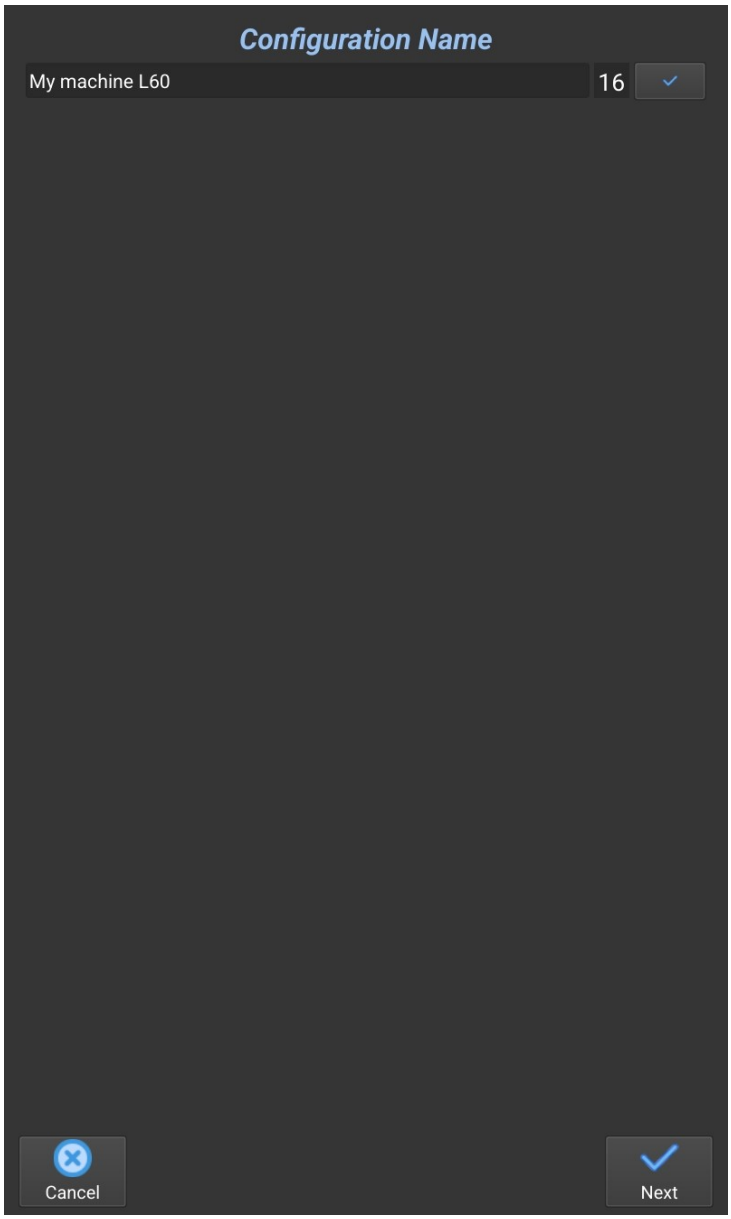


In the Machine Configuration menu, select the machine configuration to which the new bucket will be added and press the **New Bucket** button.

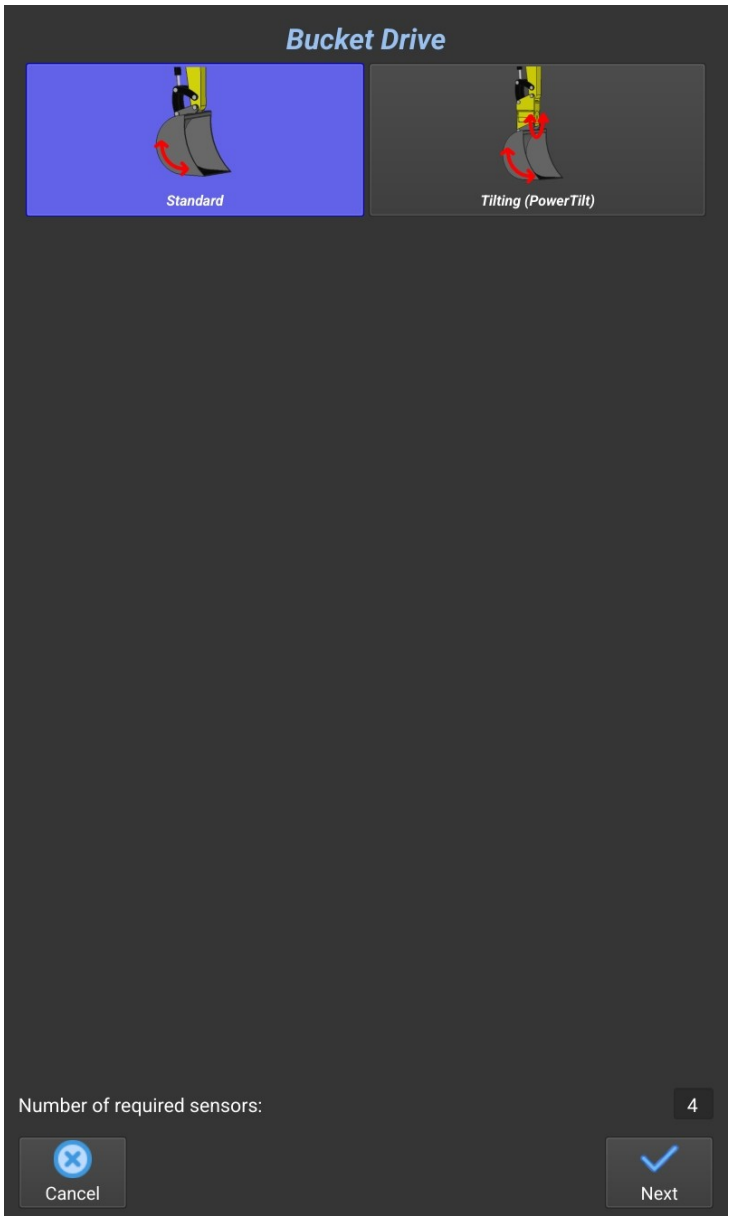


The New Bucket Configurator will start.
The configurator guides you through the entire configuration process, presenting all required actions step by step.
Carefully read and follow all instructions displayed on the screen in each configuration step.
Make sure that all actions have been completed correctly before proceeding to the next stage, as the Configurator does not allow returning to a previous step.

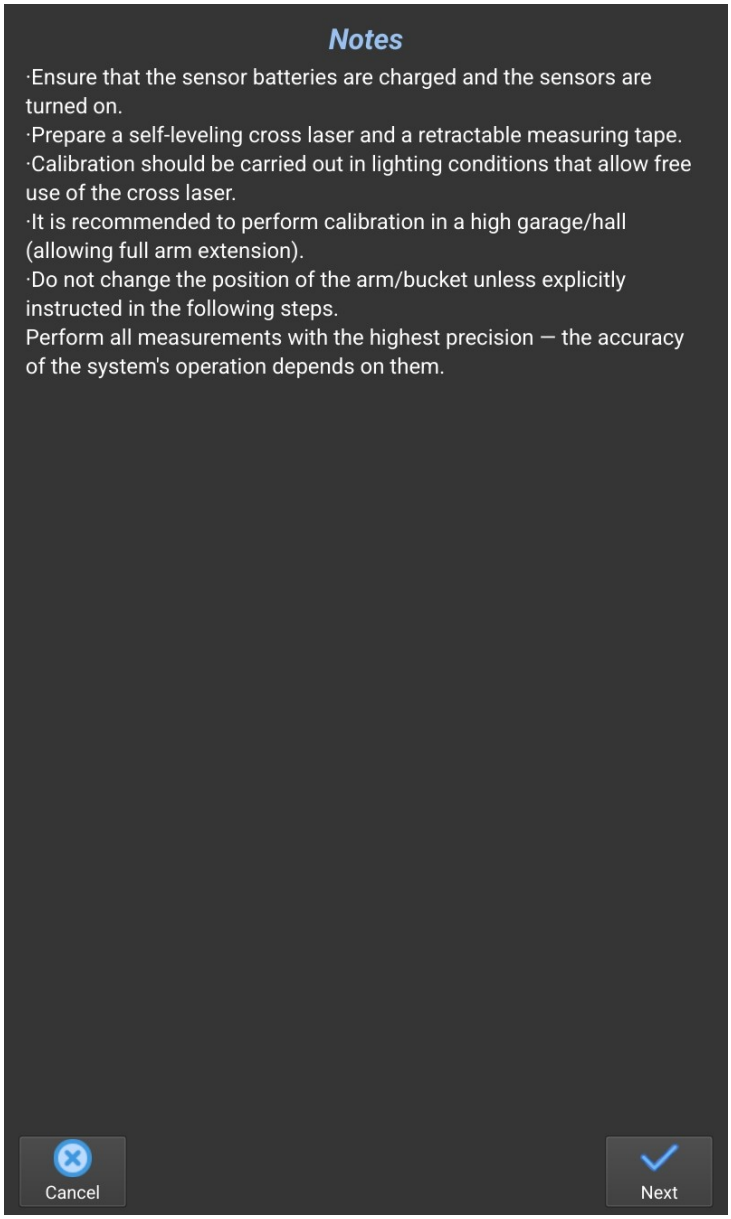
In the first step, enter the configuration name – preferably one that clearly identifies which specific machine and bucket this configuration applies to.
Confirm the name using the button next to the name field.
Use the **Next** button to proceed to the next step.



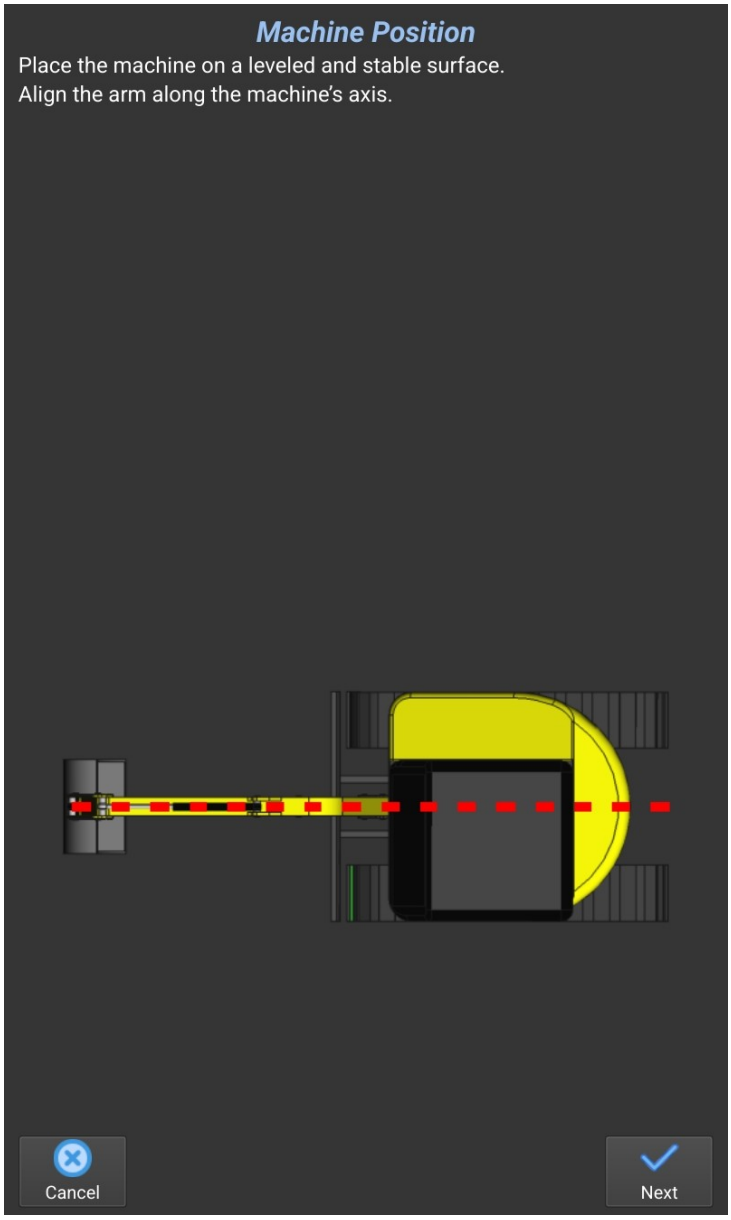
In the next step, select the bucket drive type. You can choose between a standard bucket and a tilting bucket.
For the purposes of this instruction, a standard bucket has been selected.
Use the **Next** button to proceed to the next step.



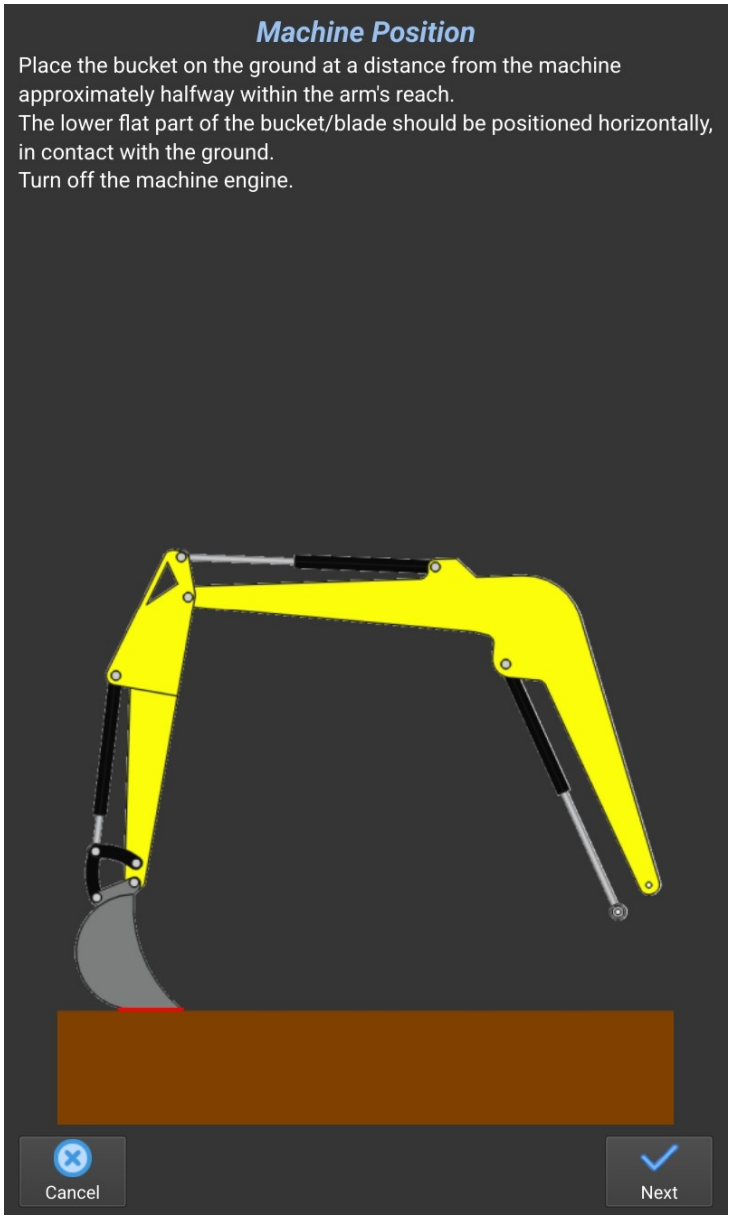
Next, a textual instruction describing the subsequent steps will be displayed.
After carefully reading and following it, press the **Next** button to proceed to the next step.



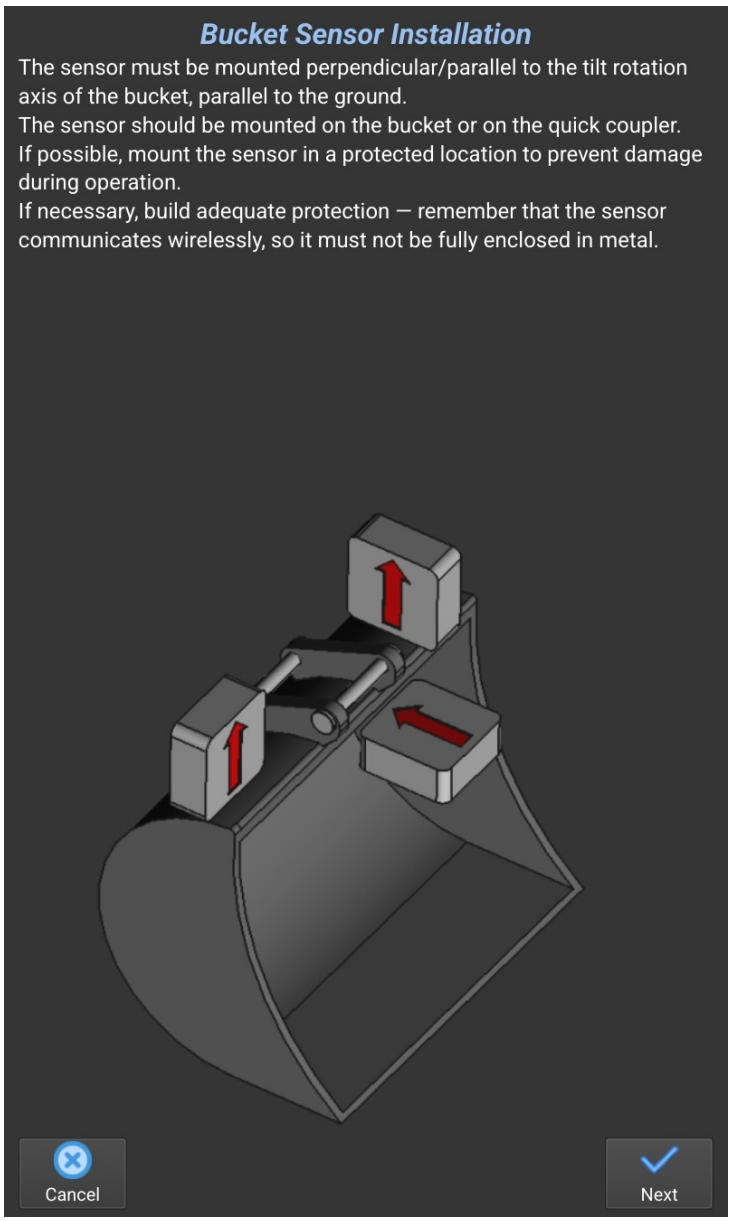
The next screen presents instructions on how to position the machine for configuration.
After carefully reading and following them, press the **Next** button to proceed to the next step.



The next screen also presents instructions on how to position the machine for configuration. After carefully reading and following them, press the **Next** button to proceed to the next step.

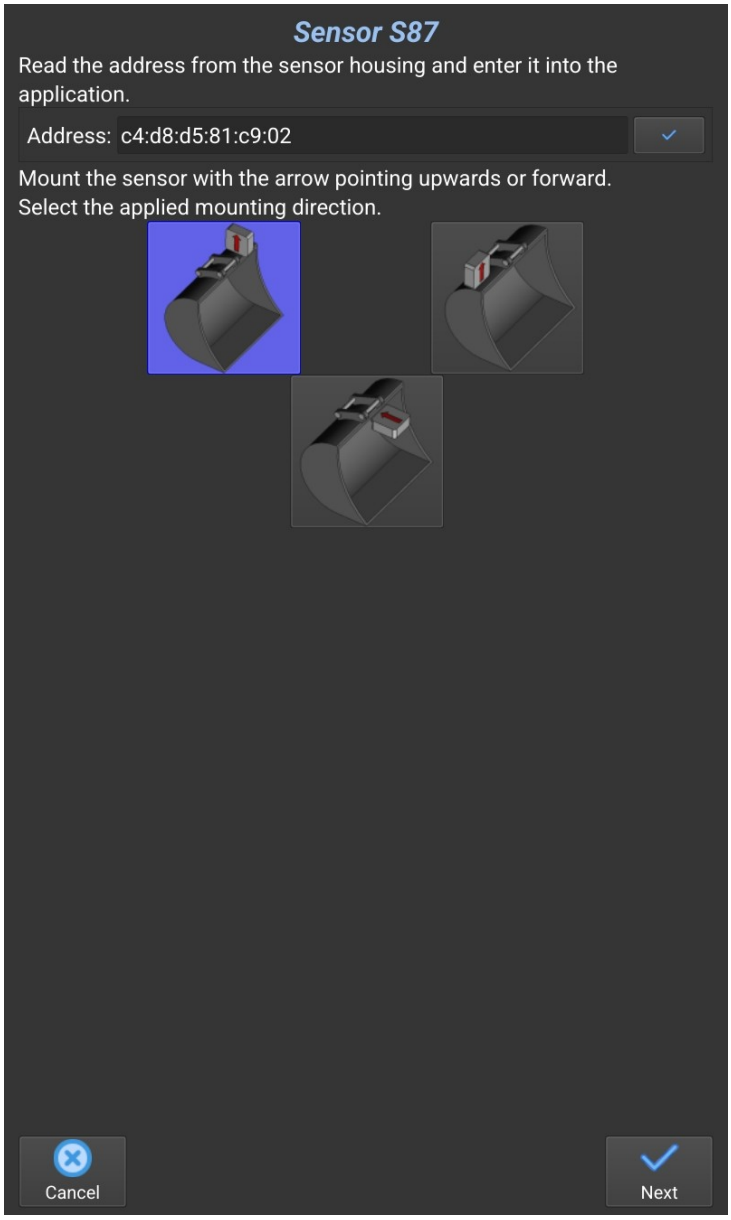


In the next step, the Configurator will display instructions for mounting the bucket sensor.
You can use a new sensor or the S87 sensor from the base configuration on which the current configuration is being created.




The bucket sensor is the most exposed to damage due to its location. It should be mounted in such a place on the bucket or quick coupler that it cannot be damaged during operation.
If necessary, metal protective covers should be constructed for the sensor, making sure not to fully enclose it, as this would prevent wireless communication between the sensor and the rest of the system.
After carefully reading and applying the instructions, press the **Next** button to proceed to the next step.

In the next step, the configurator will ask you to enter the sensor address, mount the sensor, and select the chosen sensor mounting orientation.



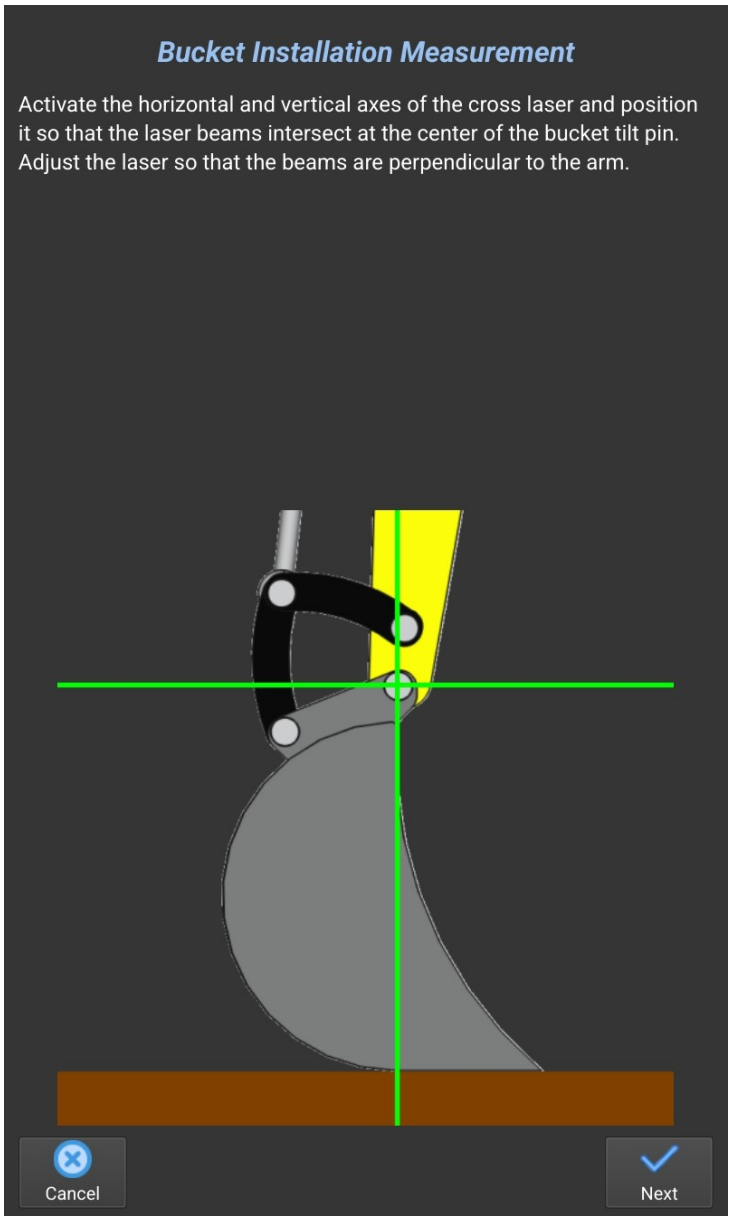

The address must be read from the label located on the sensor housing and entered into the application.
The MAC address consists of digits 0–9 and letters A–F.
Letter case does not matter, so it can be entered in either lowercase or uppercase.
If the character 0 appears in the address, there is no ambiguity between the digit zero and the letter “o”, as the letter “o” does not occur in MAC addresses.
The MAC address must be entered correctly and verified before proceeding, because if the address is entered incorrectly, the sensor will not connect and the configuration cannot be completed.


After mounting the sensor, mark on the front label the sensor number to which it has been assigned – in this case S87 (if it is a new sensor and does not already have the S87 assignment marked).

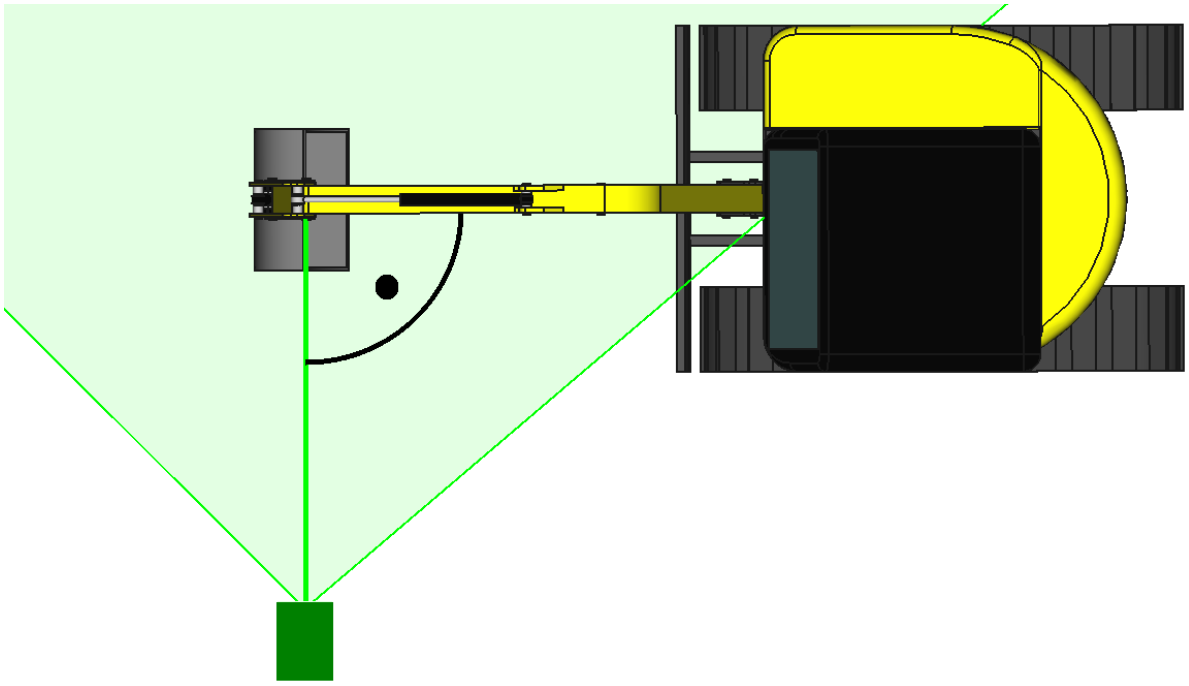

Additionally, it is recommended to write the same sensor name on the mounting bracket assigned to it, to avoid confusion at the beginning about where each sensor number should be installed.


After entering the address and selecting the sensor mounting orientation, press the **Next** button to proceed to the next step.

In the next step, the Wizard will inform you to set up the cross-line laser to facilitate the upcoming measurements.

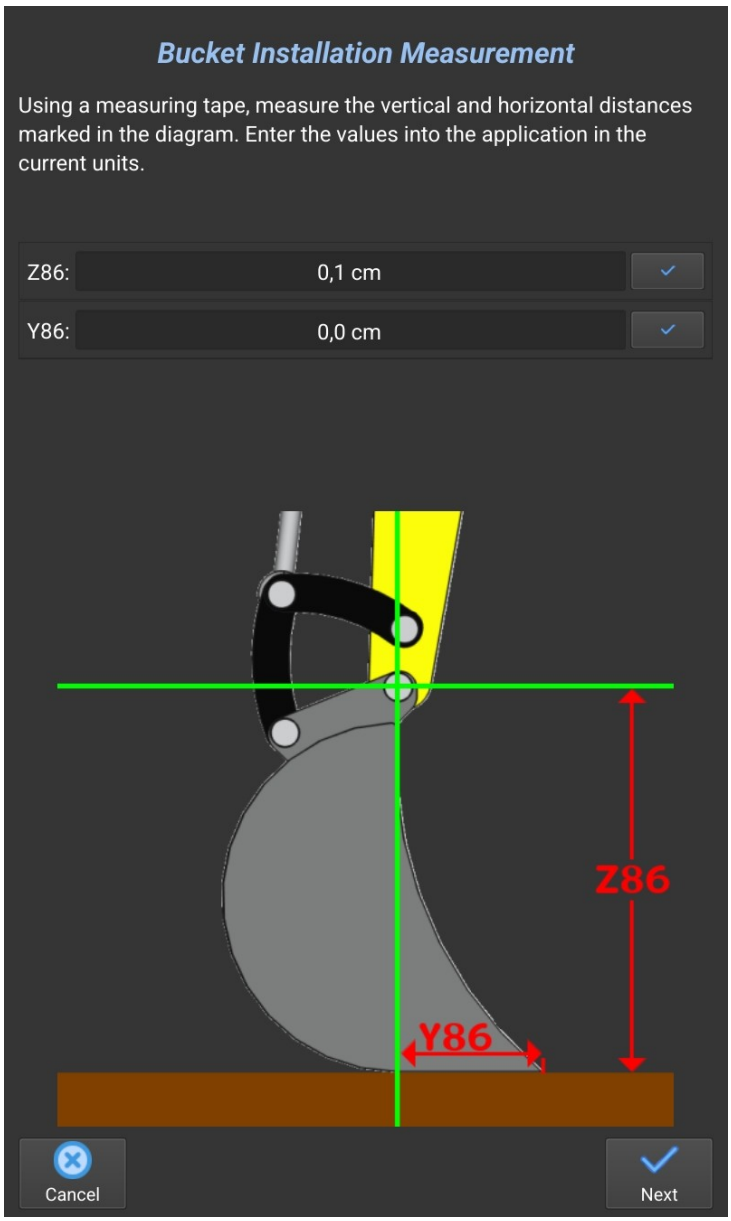


The laser should be positioned so that the vertical beam falls perpendicular to the side plane of the boom.

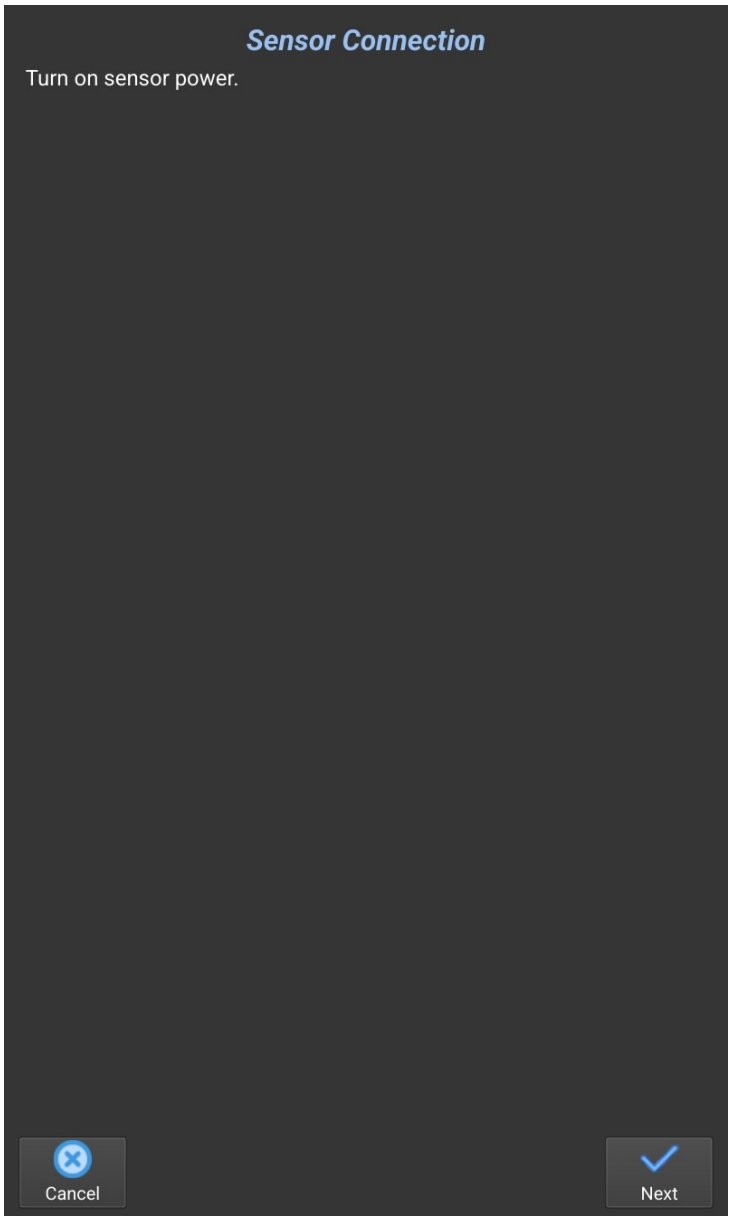


After carefully reading and following the instructions, press the **Next** button to proceed to the next step.

In the next step, measure and enter the distances marked in the diagram.
After completing the measurements and entering them into the application, press the **Next** button to proceed to the next step.

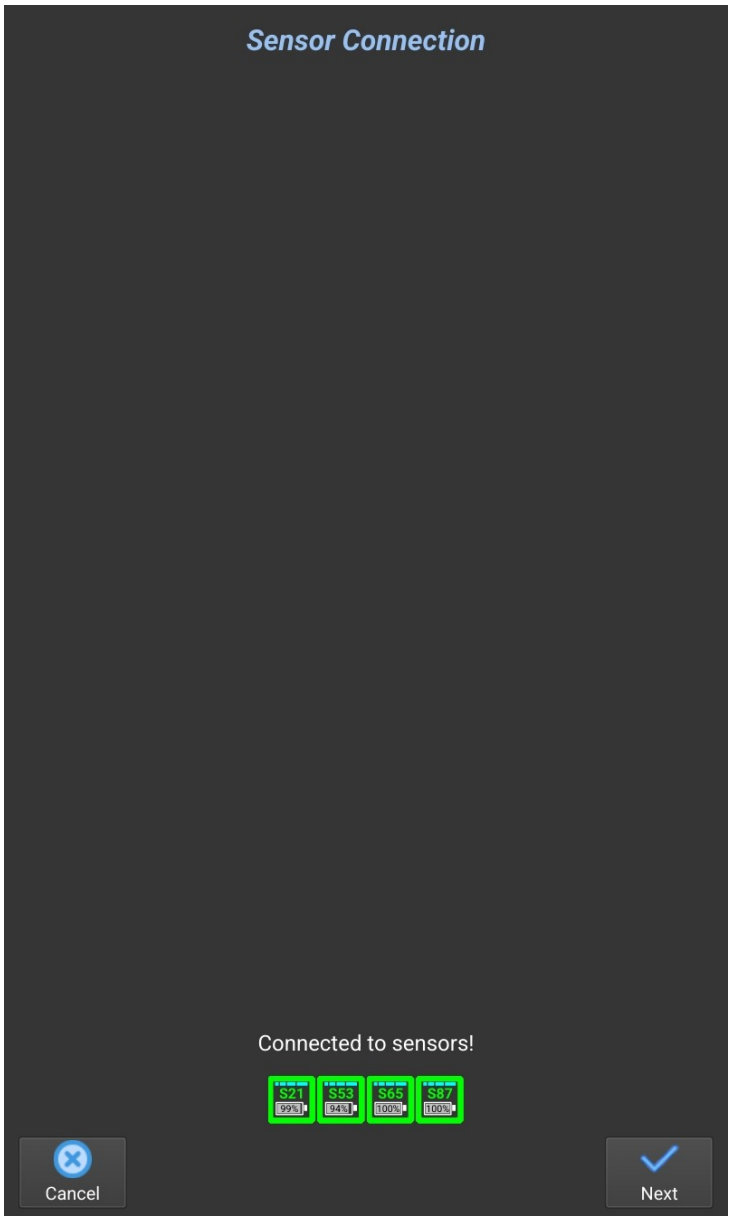


In the next step, turn on all sensors.
Each sensor is powered on by pressing and holding the power button on its housing for at least 1 second.
After powering on the sensors, press the **Next** button to proceed to the next step.
The sensors should be powered on efficiently, because if a connection is not established within 2 minutes of turning on a sensor, it will automatically shut down.

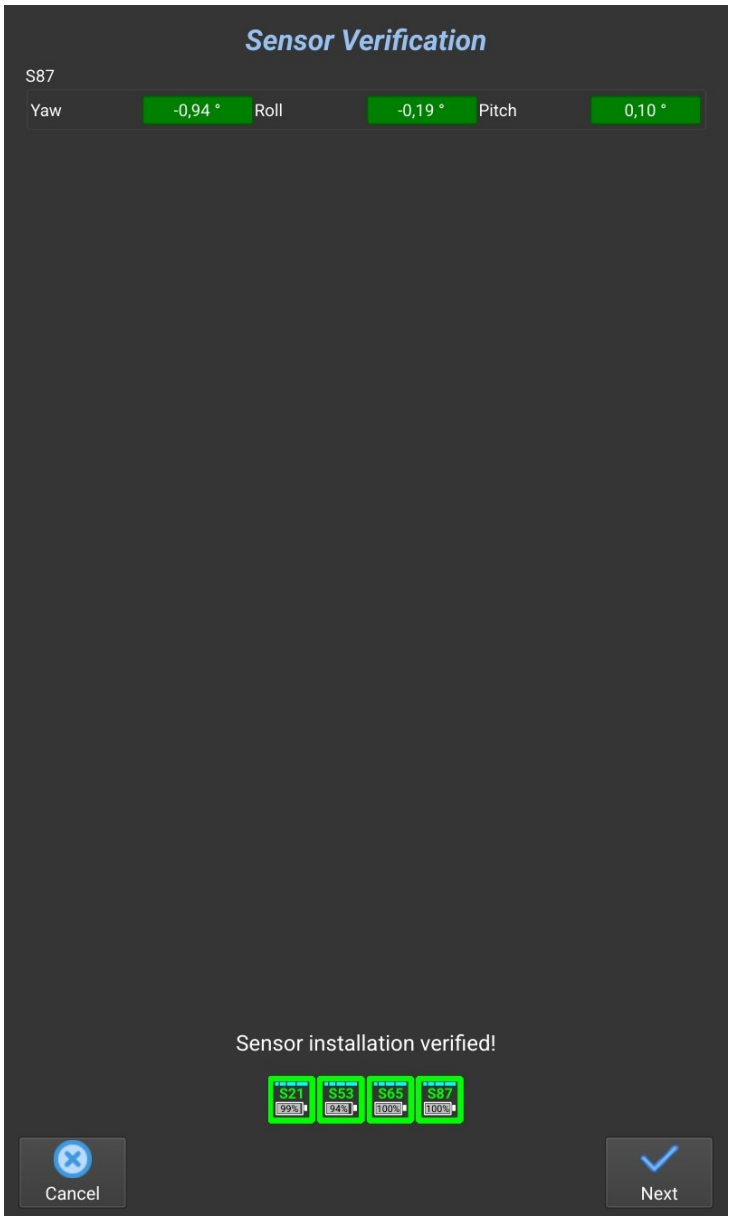


In the next step, the Wizard attempts to connect to the sensors.
If no connection is established for an extended period (more than 30 seconds), verify that the sensors are powered on. If the connection does not occur despite the sensors being on, it is highly likely that an error was made when entering the MAC addresses. In such a case, the configuration should be terminated and started again from the beginning.

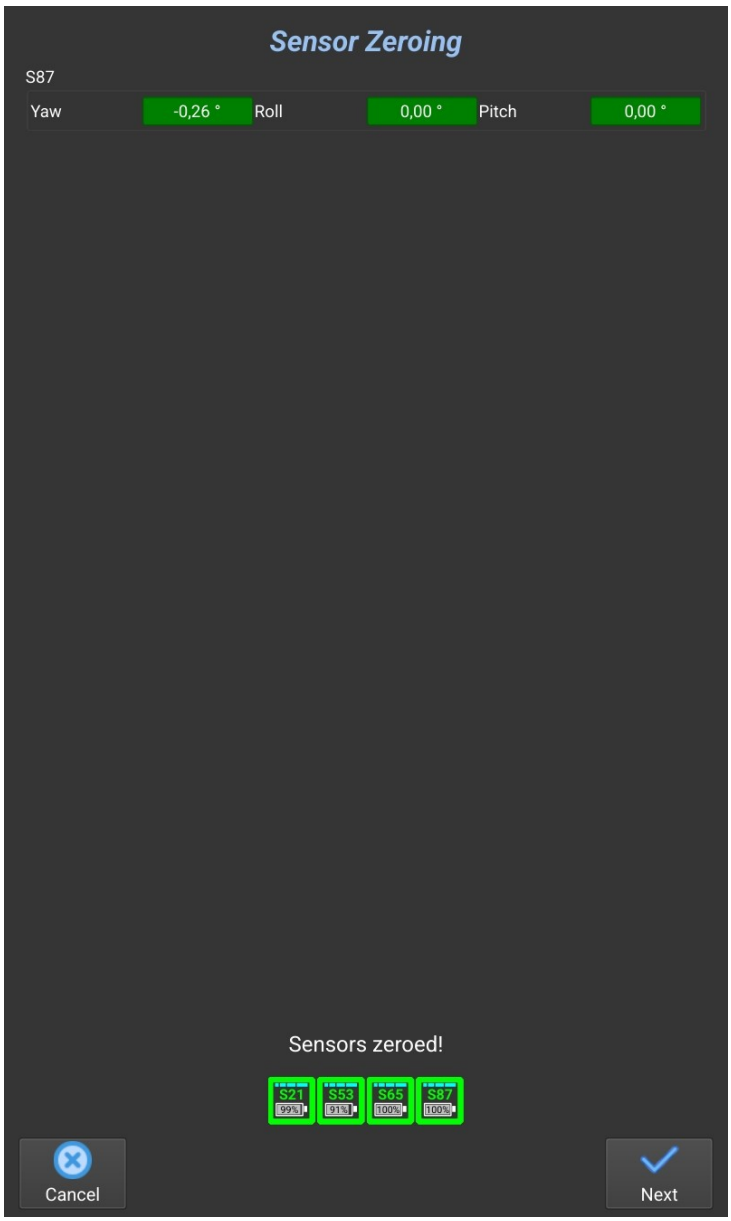
A successful connection is indicated by an appropriate message.
After a successful connection, press the **Next** button to proceed to the next step.



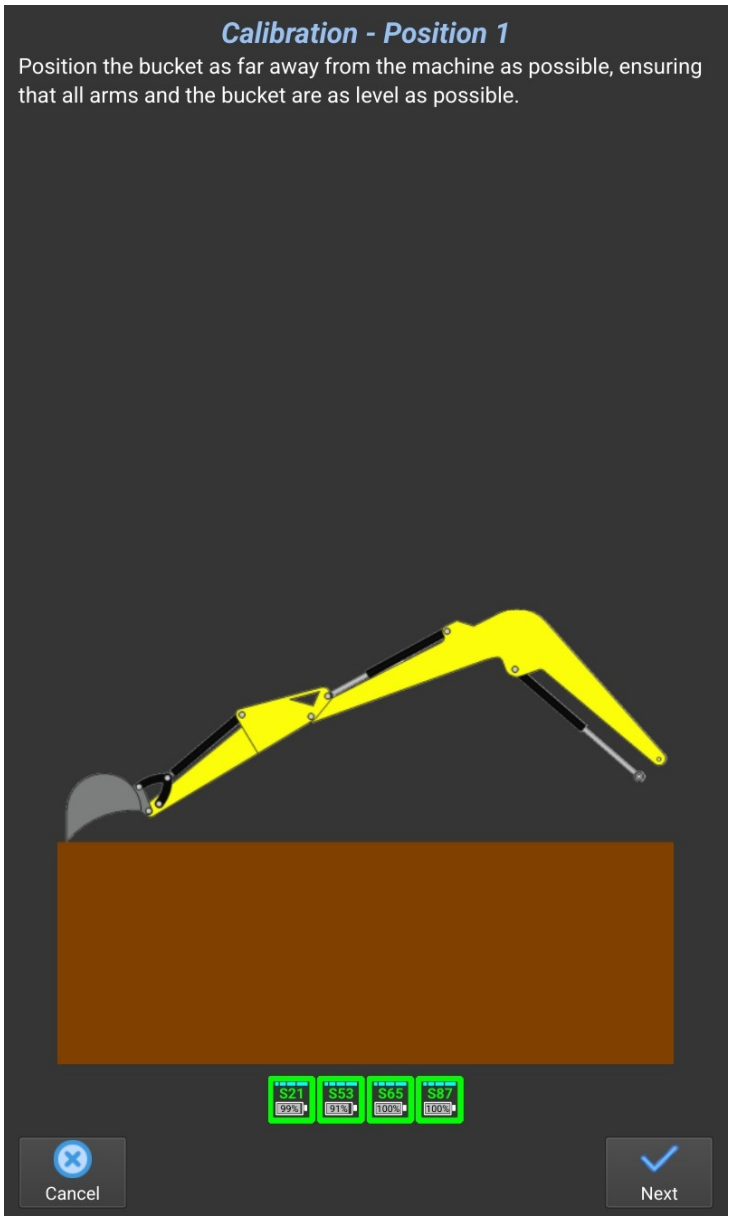
In the next step, the bucket sensor installation is verified.
If the sensor indication lights up red, it means that the sensor has not been mounted correctly (arrow orientation) or its deviation from level exceeds 20 degrees. In such a case, the configuration must be terminated and restarted, mounting the sensor correctly.
After successful verification, press the **Next** button to proceed to the next step.

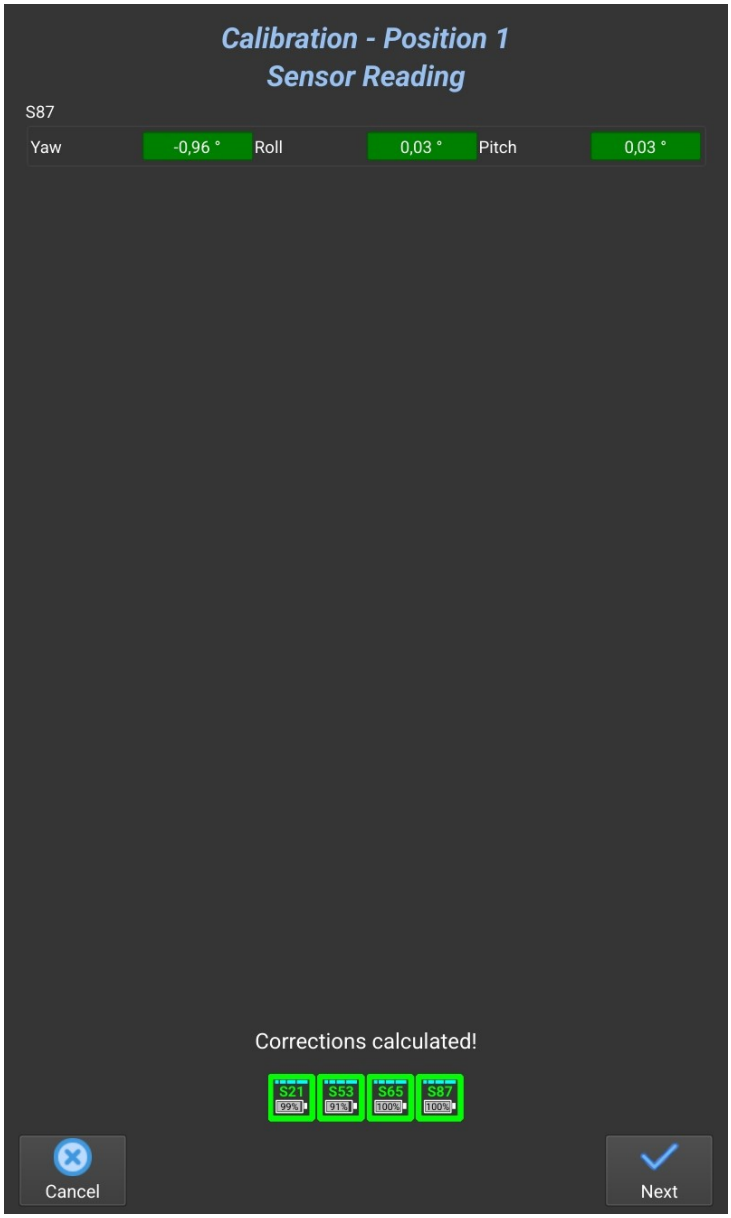


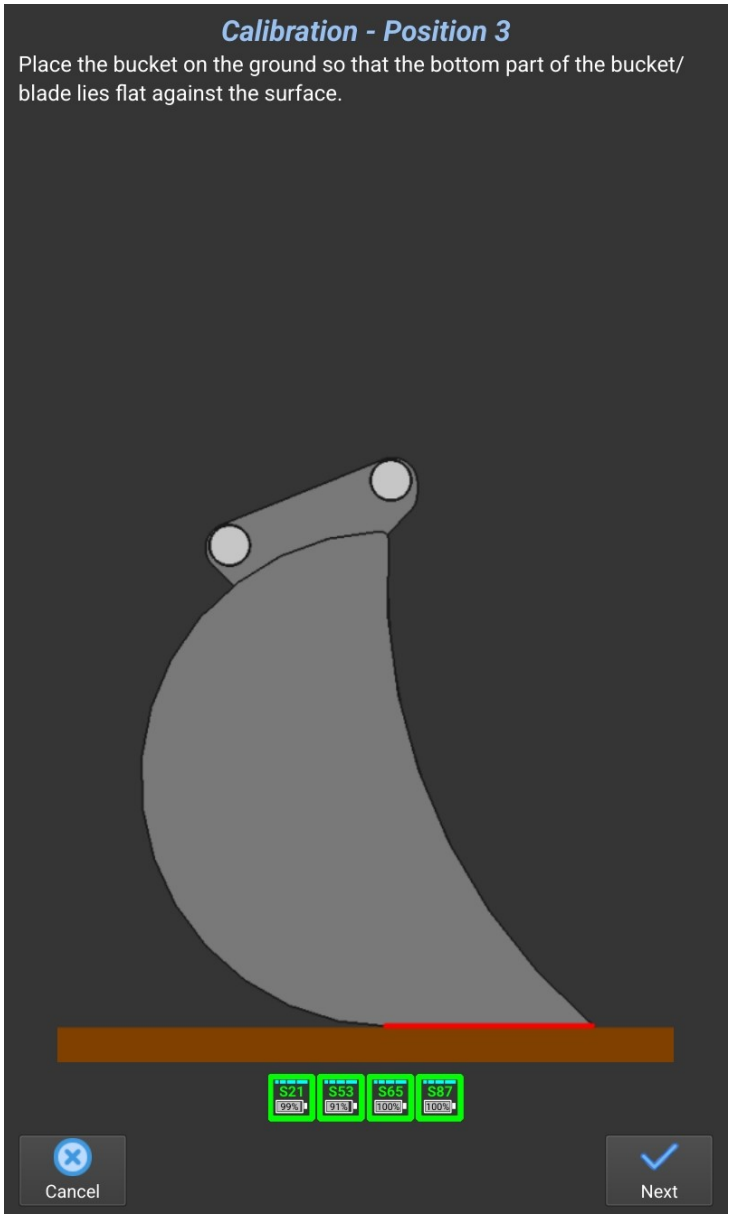
In the next step, the bucket sensor is being zeroed.
Do not move anything during this time.
After successful zeroing, press the **Next** button to proceed to the next step.

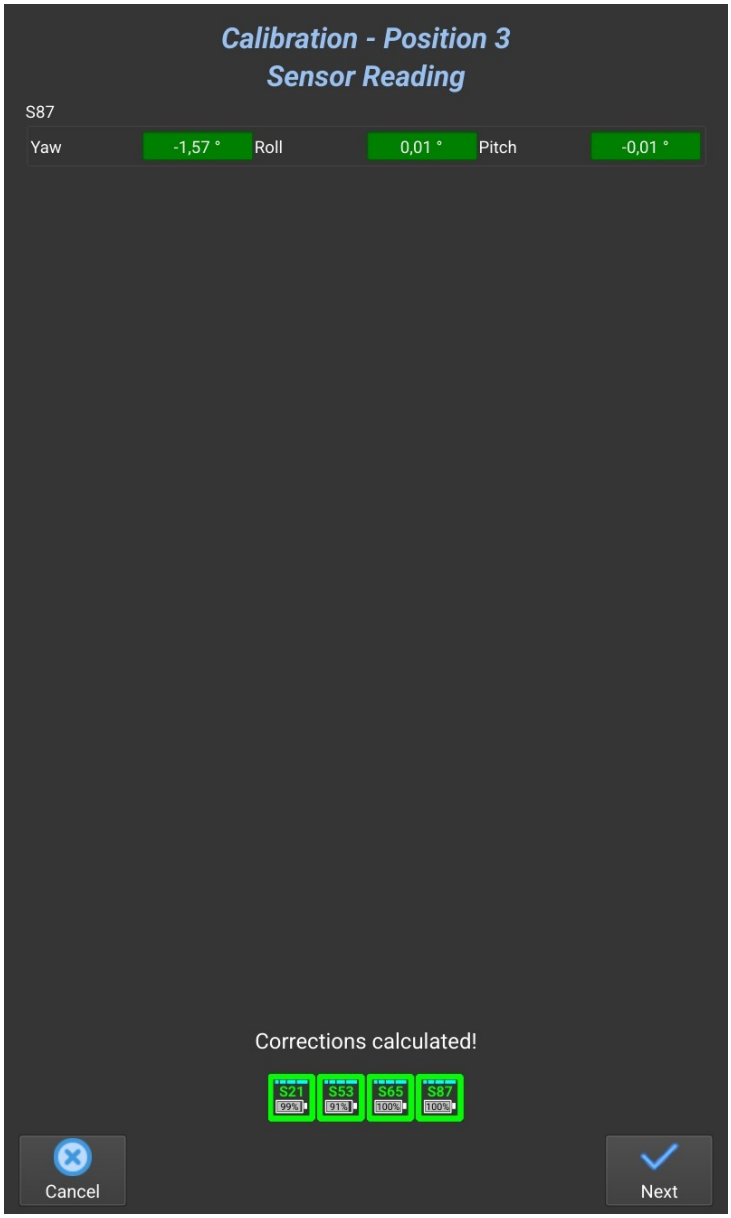


In the subsequent steps, position the bucket according to the instructions provided by the Wizard.
It is recommended to switch off the machine engine after each positioning, before pressing the **Next** button, in order to minimize the influence of engine vibrations on the measurement.
Use the **Next** button to proceed through the subsequent steps and perform the actions displayed on the following screens.

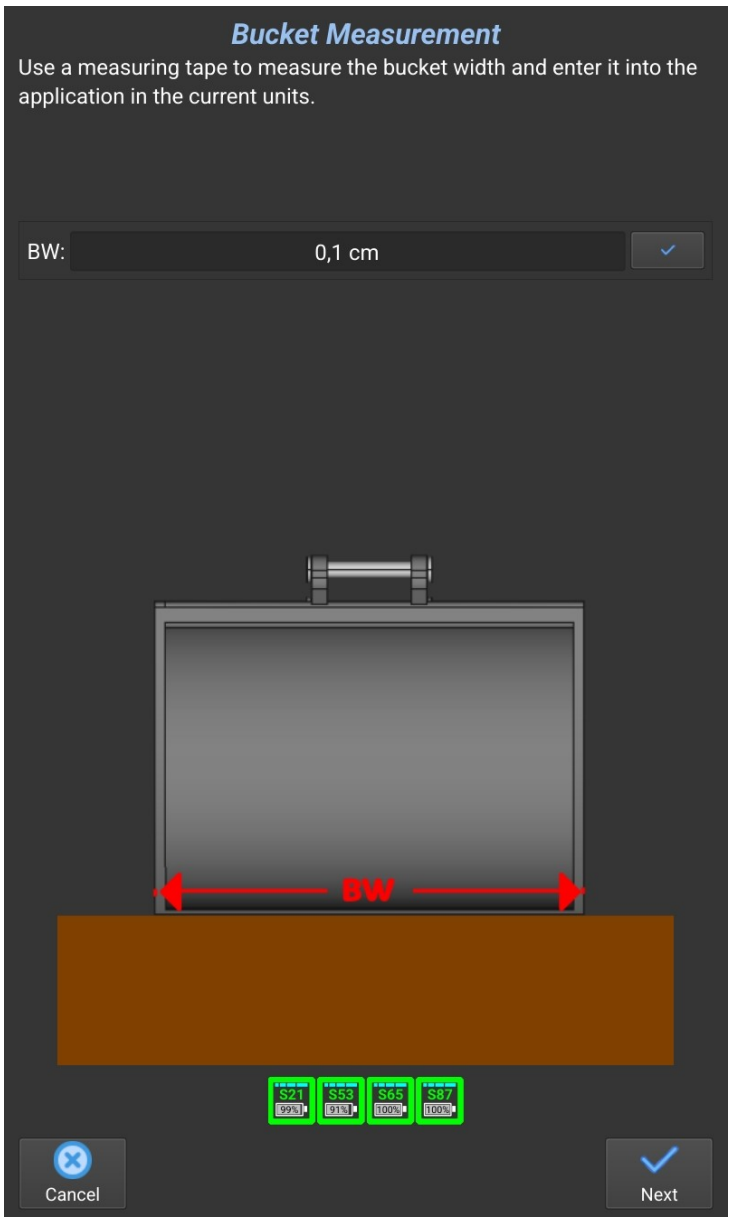



Calibration - Position 1
Sensor Reading
S87
Yaw
-0,96 °
Roll
0,03 °
Pitch
0,03 °
Corrections calculated!
S21
99%
S53
91%
S65
100%
S87
100%
Cancel
Next

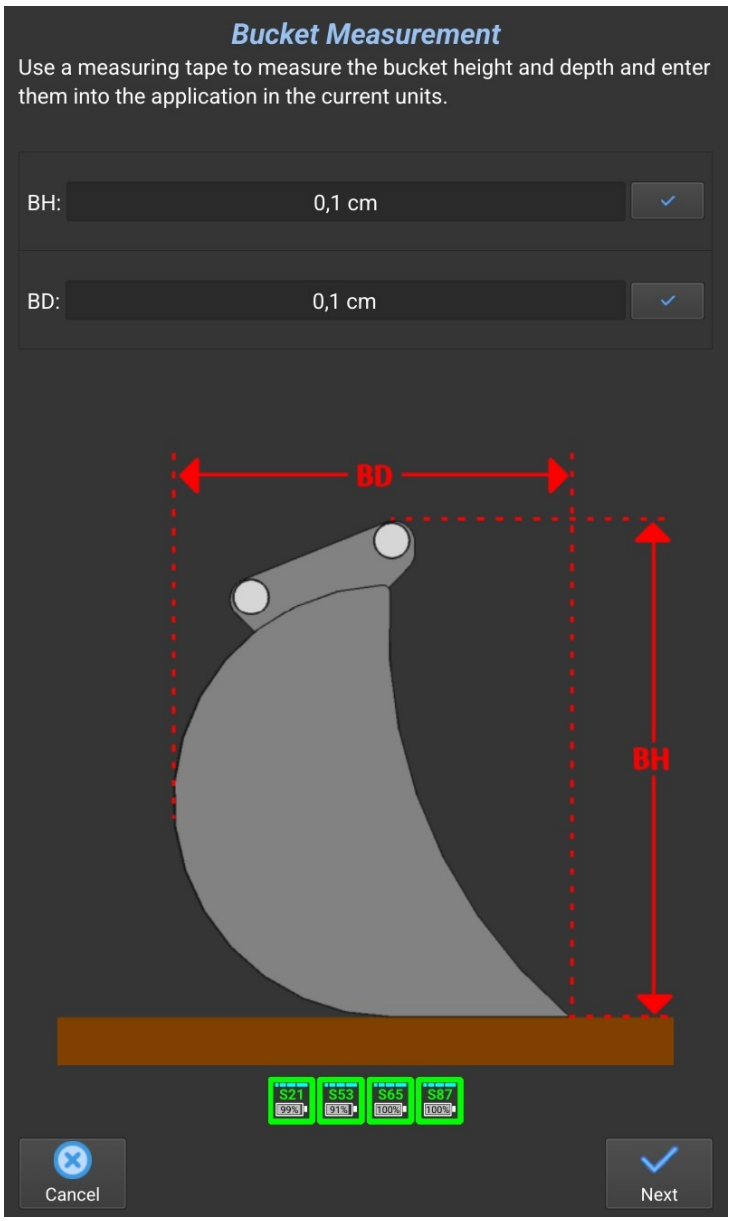

Calibration - Position 3
Place the bucket on the ground so that the bottom part of the bucket/ blade lies flat against the surface.
S21
99%
S53
91%
S65
100%
S87
100%
Cancel
Next


Calibration - Position 3
Sensor Reading
S87
Yaw
-1,57 °
Roll
0,01 °
Pitch
-0,01 °
Corrections calculated!
S21
99%
S53
91%
S65
100%
S87
100%
Cancel
Next

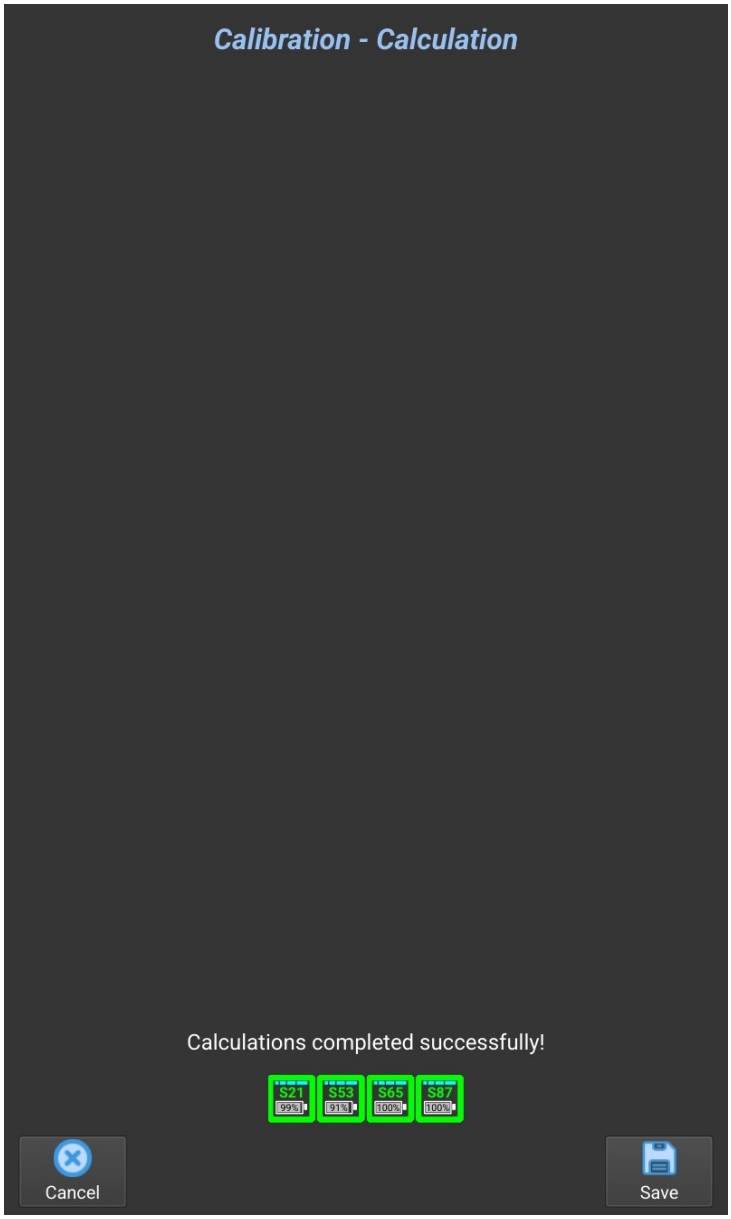
In the next step, enter the bucket width – specifically the width of the bucket cutting edge.
After taking the measurement and entering it into the application, press the **Next** button to proceed to the next step.



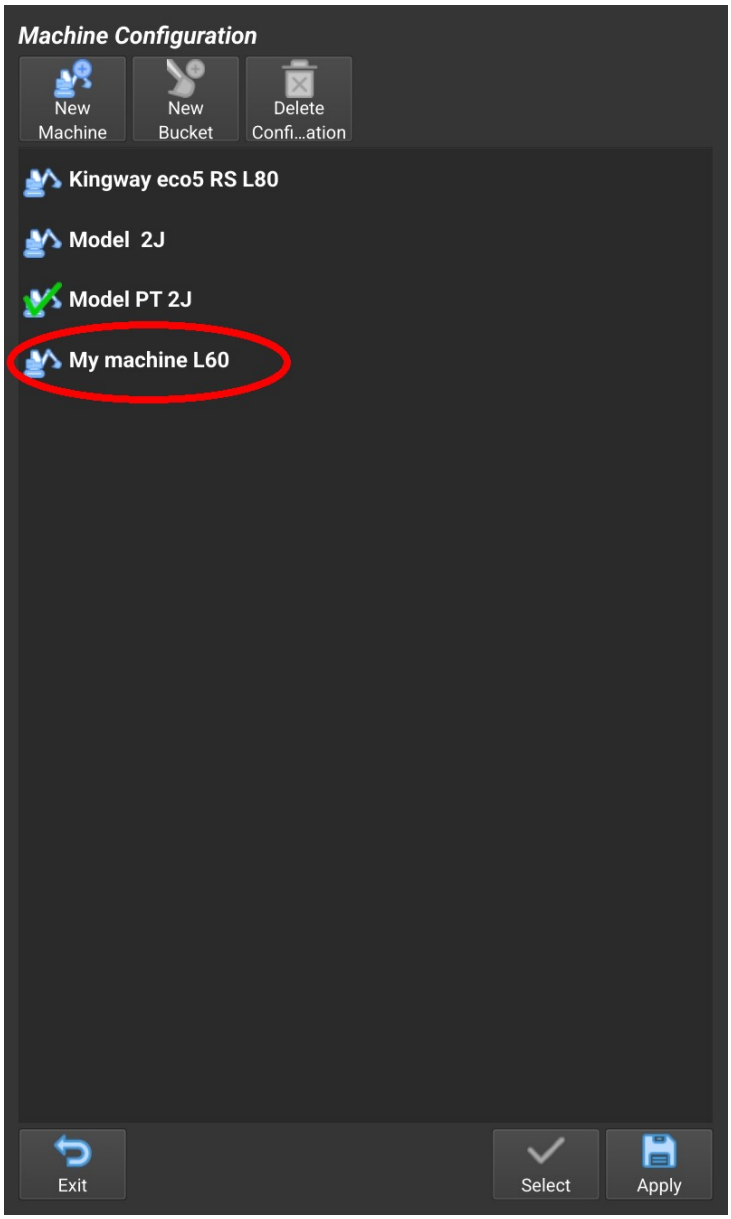
In the next step, enter the bucket height and depth.
After taking the measurements and entering them into the application, press the **Next** button to proceed to the next step.



After completing the configuration, a final screen will appear.
Use the **Save** button to create the configuration and proceed to the list.

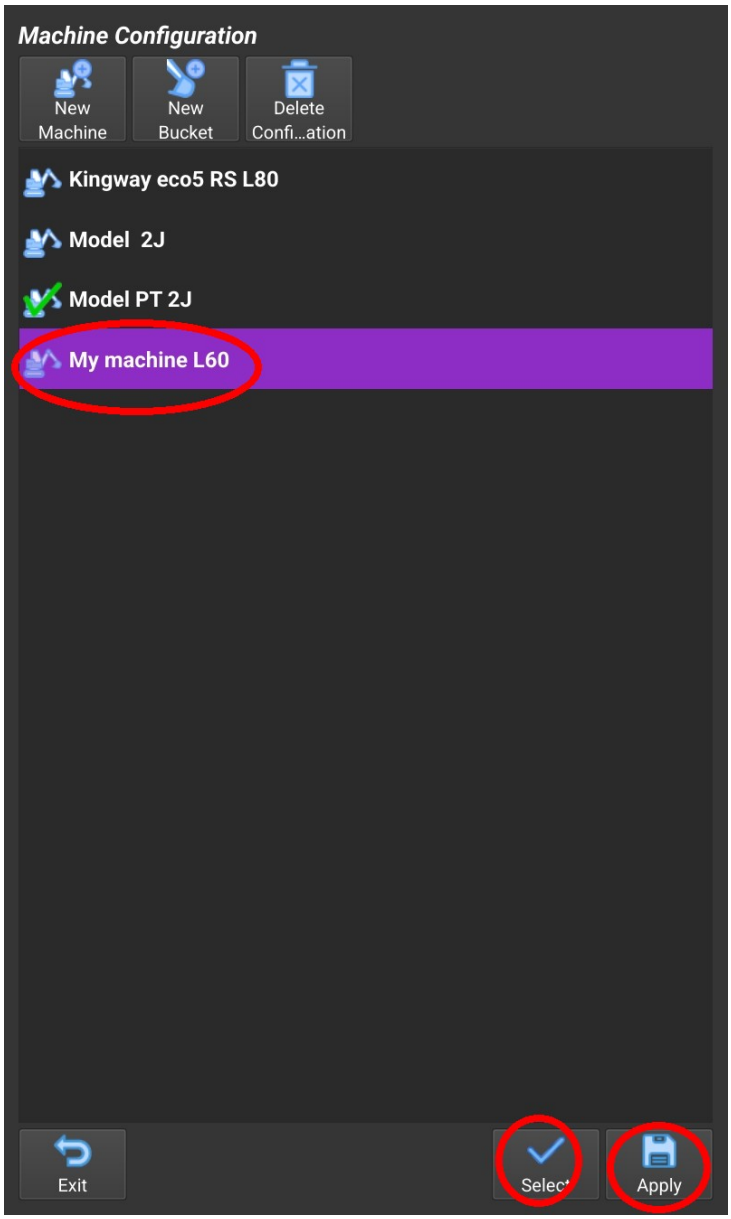


After completing the configuration, the newly created configuration will appear in the list.




**Very important!**
**After creating the configuration, press the Apply button to permanently save the configuration in the device memory.**
**Clicking Exit without pressing Apply will result in the loss of the created configuration.**

To select a configuration for use, highlight it in the list and click the **Select** button, then **Apply**.



The machine configuration selected for use is marked with a green check mark next to its name in the list.