

ORION USER MANUAL

July 2025

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1. Introduction

This document is a user manual for a software system designed to operate the robotic veneer sheet processing line. It describes the software's features, interface, and usage procedures.

2. Software Purpose

The software is designed to perform the following functions:

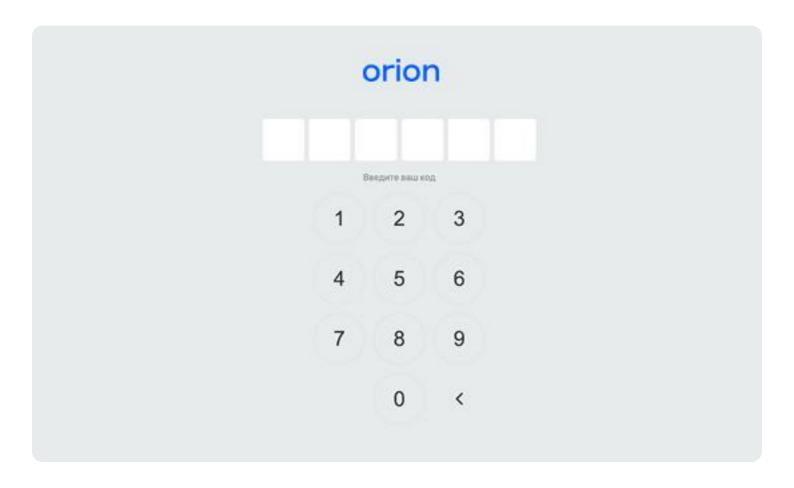
- 2.1. Interface with the production line to eliminate veneer sheet defects
- 2.2. Integrate with a machine vision system
- 2.3. Communicate with a programmable logic controller (PLC)
- 2.4. Detect defects in veneer sheets using neural network models based on machine learning
- 2.5. Display defect recognition results:
 - 2.5.1. Types and quantities of defects
 - 2.5.2. Veneer grades before and after repair
 - 2.5.3. Build repair paths based on the patching machine ejector's position
- 2.6. Configure controller parameters through service settings
- 2.7. Display reference materials for the current software version
- 2.8. Create and edit products
- 2.9. Create and edit recipes
- 2.10. Display the user interface based on role: Administrator, Technologist, Operator



3. Authorization

To log in to the software suite:

- 3.1. Enter your personal six-digit code using the numeric keypad.
- 3.2. If a mistake is made, delete the last character by pressing the "<" (delete) key.



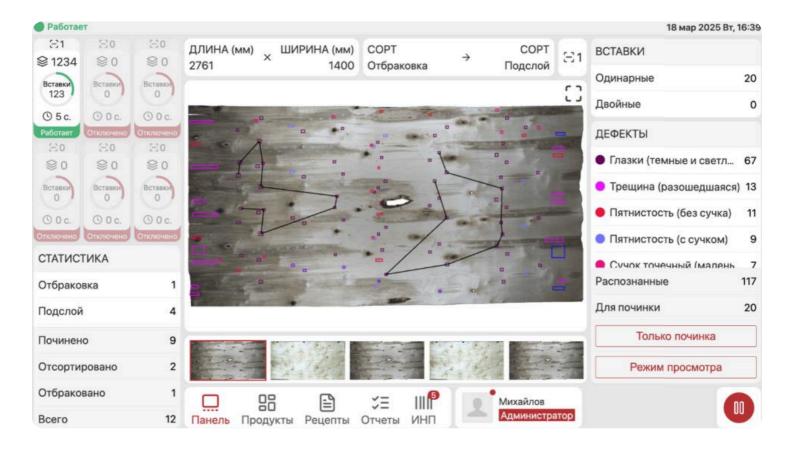


4. Main Screen

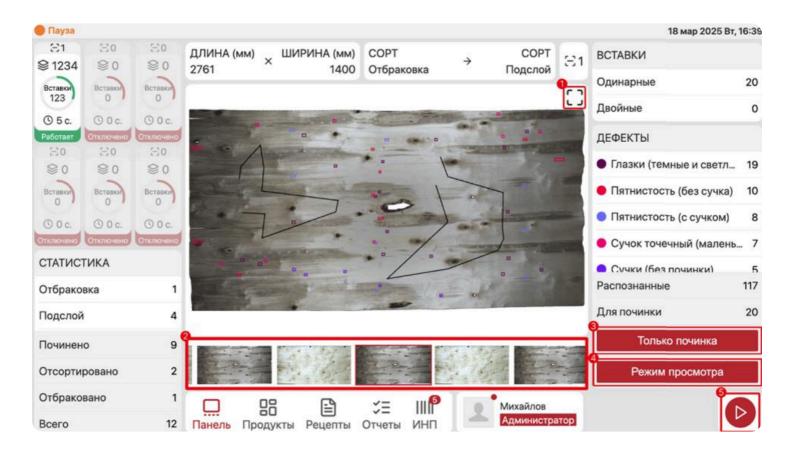
4.1. Main Screen Content

The main screen displays the following information:

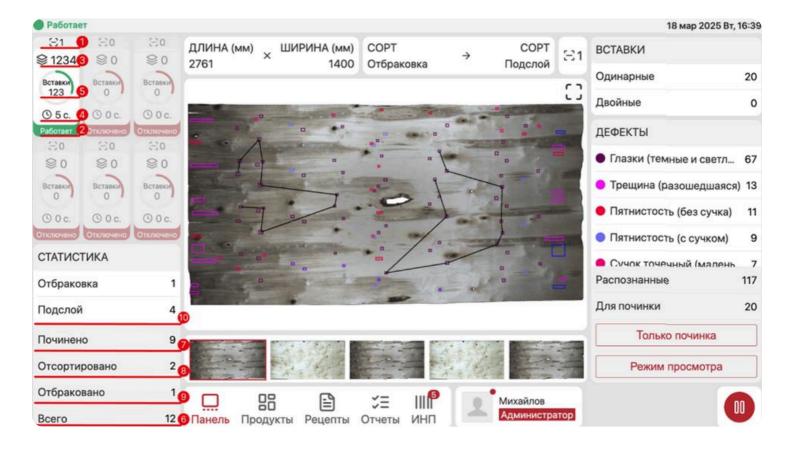
- 4.1.1. Processed veneer sheet
- 4.1.2. Length and width of the sheet (in mm)
- 4.1.3. Current and target veneer grades
- 4.1.4. Number of single and double inserts performed by the RTC system
- 4.1.5. Number and types of recognized defects
- 4.1.6. Total number of detected defects and those sent to RTC for repair



- 4.2. Main Screen Functional Features
- 4.2.1. Veneer Image Manipulation:
- 4.2.1.1. Zoom in for detailed viewing or switch to full-screen mode (label "1"). To exit full screen, press the button in the top-right corner.
- 4.2.1.2. View previously scanned sheets (label "2"). Selecting a sheet activates View Mode.
- 4.2.2. View Mode: Image display remains static, not updated in real-time (label "4").
- 4.2.3. Repair Only Mode: Displays only repairable defects on the list and on the image (label "3").
- 4.2.4. Pause / Resume: Controls the processing workflow (label "5").



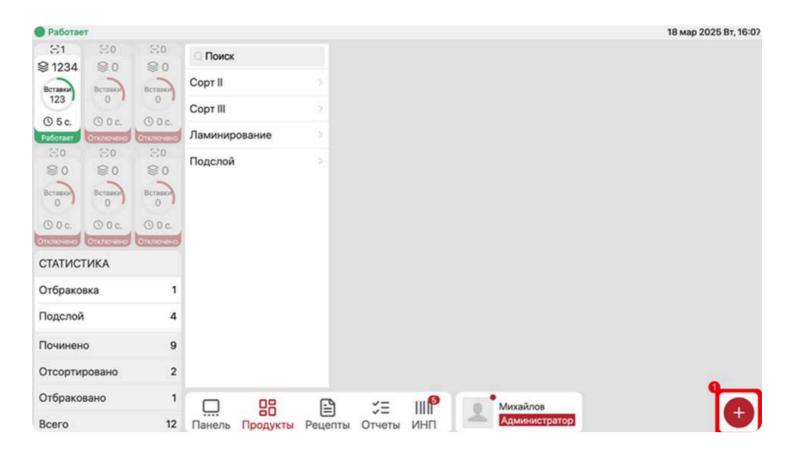
- 4.3. Left Block of the Screen
- 4.3.1. RTC Cell Information:
- 4.3.1.1. Cell ID number (label "1")
- 4.3.1.2. Current status (Active / Off / Error / Manual) (label "2")
- 4.3.1.3. Number of sheets repaired by the cell (label "3")
- 4.3.1.4. Average repair time per sheet (label "4")
- 4.3.1.5. Number of remaining inserts required to complete the current sheet (label "5")
- 4.3.2. General statistics for the current production run:
- 4.3.2.1. Number of processed sheets (label "6")
- 4.3.2.2. Number of repaired sheets (label "7")
- 4.3.2.3. Number of sorted sheets not requiring repair (label "8")
- 4.3.2.4. Number of rejected sheets per recipe criteria (label "9")
- 4.3.2.5. Veneer yield statistics by grade (label "10")



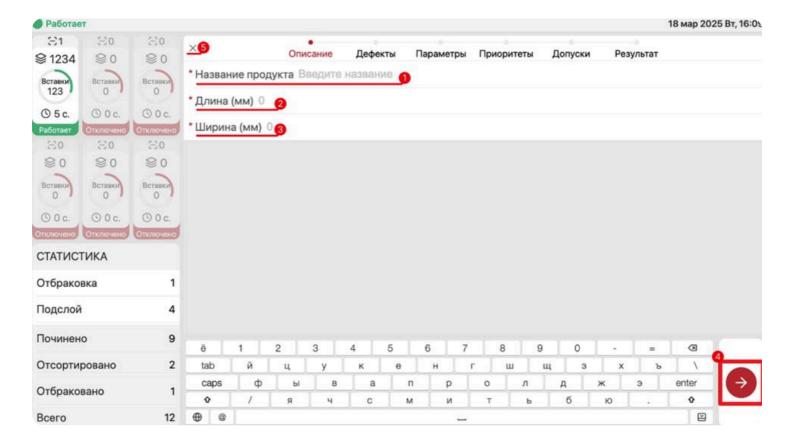


5. Products

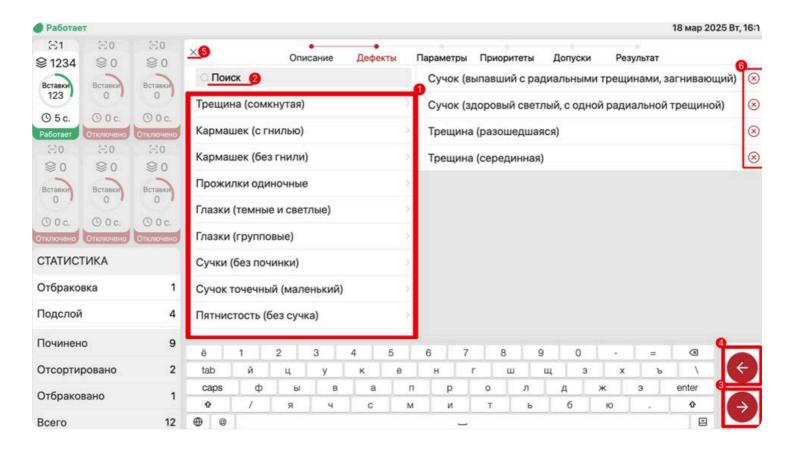
- 5.1. Creating a Product
- 5.1.1. Press the red "+" button in the bottom right corner of the screen (label "1").



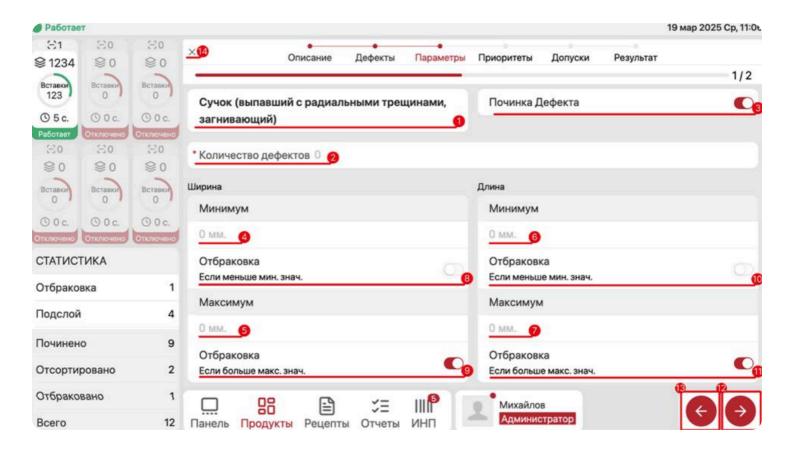
- 5.1.2. Fill in the product details:
- 5.1.2.1. Enter the product name (letters, numbers, and special characters allowed) (label "1")
- 5.1.2.2. Specify length in millimeters (label "2")
- 5.1.2.3. Specify width in millimeters (label "3")
- 5.1.2.4. Proceed to the next step (red arrow button pointing right) (label "4")
- 5.1.2.5. To cancel, press the cross icon (label "5")



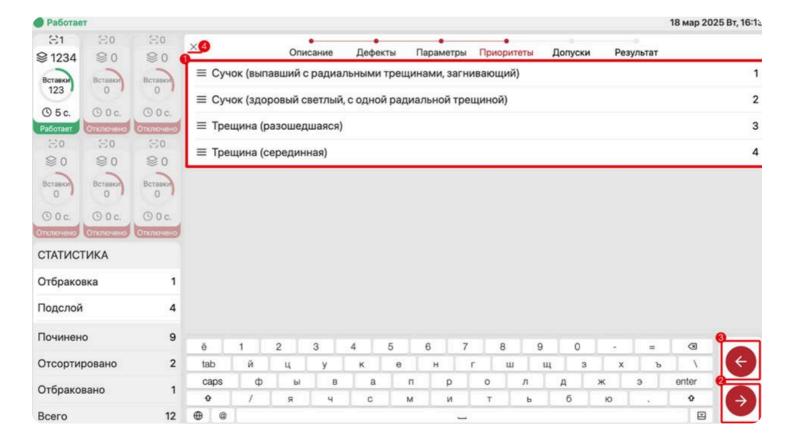
- 5.1.3. Select defects:
- 5.1.3.1. Choose defects from the list that should be considered during production and processing (label "1") (Use the search field if necessary label "2")
- 5.1.3.2. You can remove mistakenly selected defects using delete button (label "7")
- 5.1.3.3. Proceed to the next step (red arrow button pointing right label "3")
- 5.1.3.4. Go back to the previous step (red arrow button pointing left label "4")
- 5.1.3.5. To cancel, press the cross icon (label "5")



- 5.1.4. Specify defect parameters (for each selected defect in order, the defect name is shown in field "1"):
- 5.1.4.1. Set allowable quantity for this defect type (label "2")
- 5.1.4.2. Specify whether the defect is repairable (toggle switch label "3")
- 5.1.4.3. Define defect size limits (min/max length/width labels "4-7")
- 5.1.4.4. Enable rejection if size limits are exceeded (toggle switches labels "8-11")
- 5.1.4.5. Proceed to the next step (red arrow button pointing right label "12")
- 5.1.4.6. Go back to the previous step (red arrow button pointing left label "13")
- 5.1.4.7. To cancel, press the cross icon (label "14")

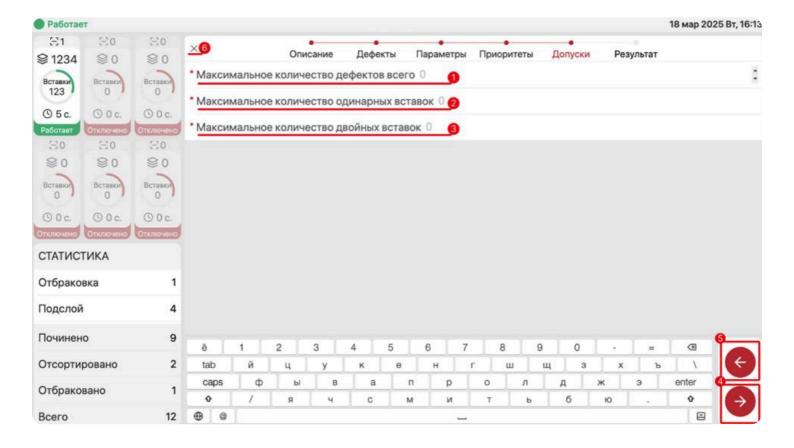


- 5.1.5. Set repair priorities:
- 5.1.5.1. Set defect repair priorities by dragging rows (label "1")
- 5.1.5.2. Proceed to the next step (red arrow button pointing right label "2")
- 5.1.5.3. Return to the previous step (red arrow button pointing left label "3")
- 5.1.5.4. To cancel, press the cross icon (label "4")

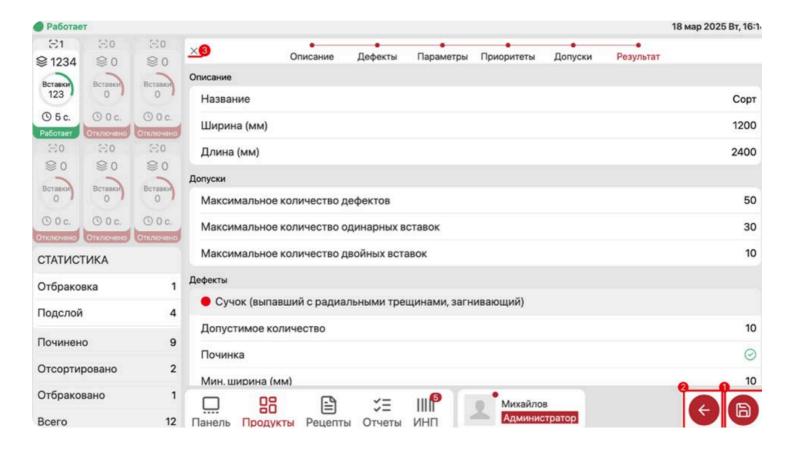




- 5.1.6. Set tolerances:
- 5.1.6.1. Max allowable number of unrepairable defects (label "1")
- 5.1.6.2. Max allowable number of single inserts (label "2")
- 5.1.6.3. Max allowable number of double inserts (label "3")
- 5.1.6.4. Proceed to the next step (red arrow button pointing right label "4")
- 5.1.6.5. Return to the previous step (red arrow button pointing left label "5")
- 5.1.6.6. To cancel, press the cross icon (label "6")

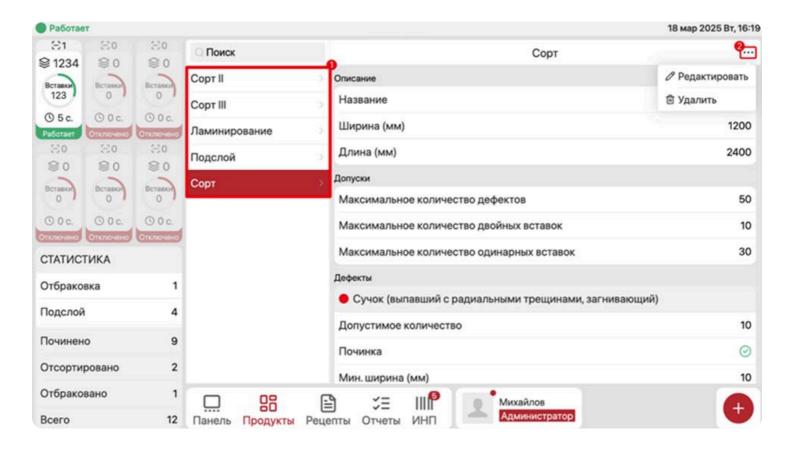


- 5.1.7. Result
- 5.1.7.1. Verify that all fields are correctly filled
- 5.1.7.2. Save the new product by clicking the Save button (red diskette icon label "1")
- 5.1.7.3. If corrections are needed, go back (red arrow pointing left label "2")
- 5.1.7.4. To cancel, press the cross icon (label "3")



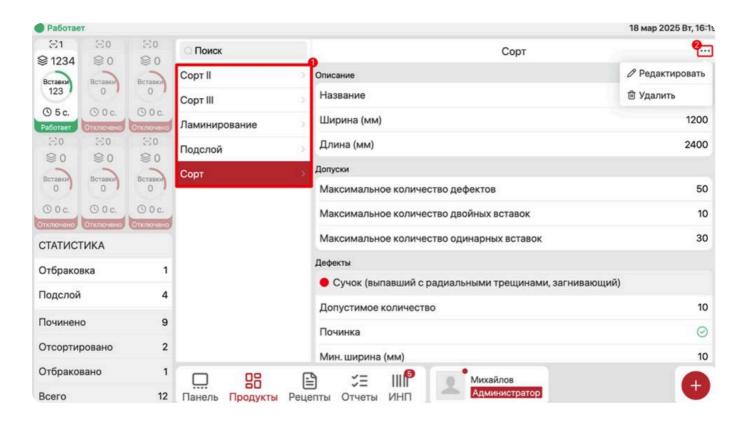


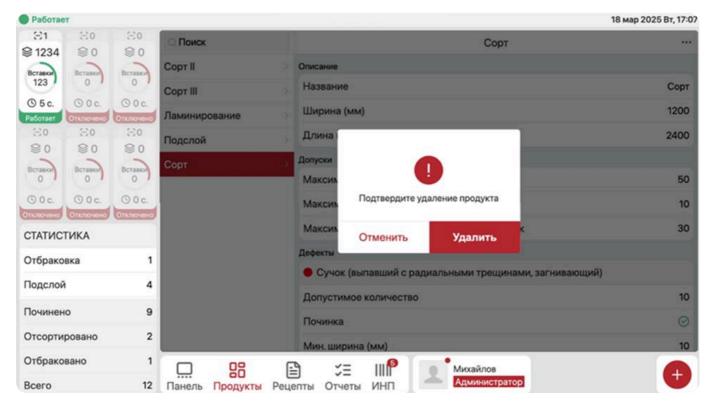
- 5.2. Editing a Product
- 5.2.1. Select a product from the list (label "1")
- 5.2.2. Open the menu ("...") (label "2")
- 5.2.3. Click Edit
- 5.2.4. Continue through the product creation flow with pre-filled data (see 5.1.2)





- 5.3. Deleting a Product
- 5.3.1. Select a product from the list (label "1")
- 5.3.2. Open the menu ("...") (label "2")
- 5.3.3. Click Delete
- 5.3.4. Confirm the action

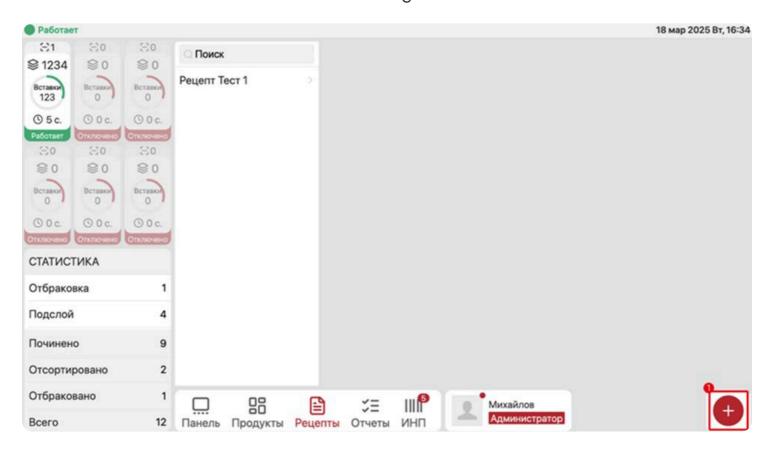




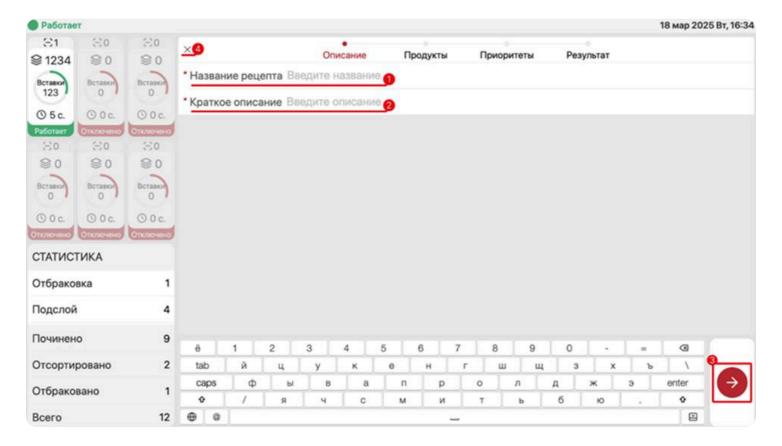
6. Recipes

6.1. Creating a Recipe

6.1.1. Press the red "+" button in the bottom right corner of the screen (label "1").



- 6.1.2. Fill in the recipe description
- 6.1.2.1. Enter the recipe name (label "1")
- 6.1.2.2. Enter a short description for the operator (label "2")
- 6.1.2.3. Proceed to the next step (red arrow button pointing right label "3")
- 6.1.2.4. To cancel, press the cross icon (label "4")

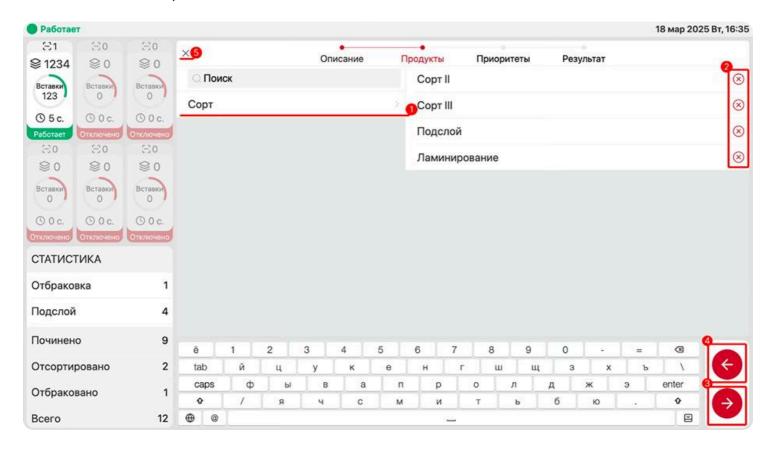




- 6.1.3. Products
- 6.1.3.1. Select products to associate with the recipe (label "1")

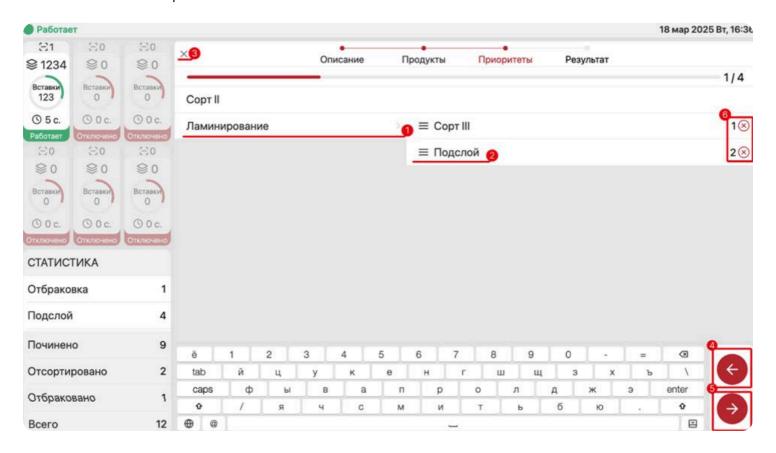
(Note: the system will only verify incoming veneer sheets against the selected products at this stage)

- 6.1.3.2. You can remove mistakenly selected products using the red cross (label "2")
- 6.1.3.3. Proceed to the next step (red arrow button pointing right label "3")
- 6.1.3.4. Return to the previous step (red arrow button pointing left label "4")
- 6.1.3.5. To cancel, press the cross icon (label "5")

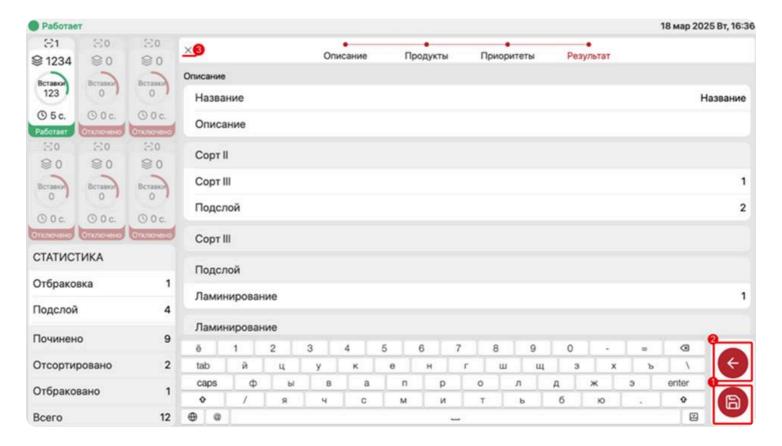


6.1.4. Priorities

- 6.1.4.1. Select from the list the products the system will attempt to match the sheet to during repair (label "1")
- 6.1.4.2. Drag and drop to set priority for the target product list (label "2")
- 6.1.4.3. You can remove mistakenly selected products using the red cross (label "6")
- 6.1.4.4. Proceed to the next step (red arrow button pointing right label "5")
- 6.1.4.5. Return to the previous step (red arrow button pointing left label "4")
- 6.1.4.6. To cancel, press the cross icon (label "3")

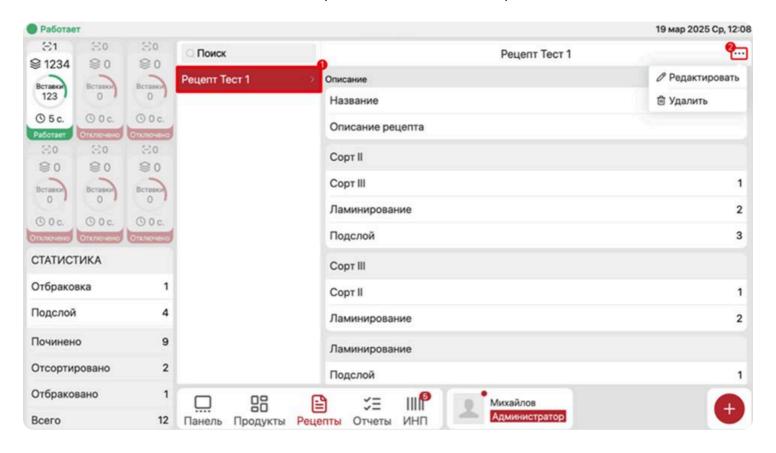


- 6.1.5. Result
- 6.1.5.1. Verify that all fields are filled correctly
- 6.1.5.2. Save the new recipe by clicking the Save button (red diskette icon label "1")
- 6.1.5.3. If corrections are needed, go back (red arrow pointing left label "2")
- 6.1.5.4. To cancel, press the cross icon (label "3")



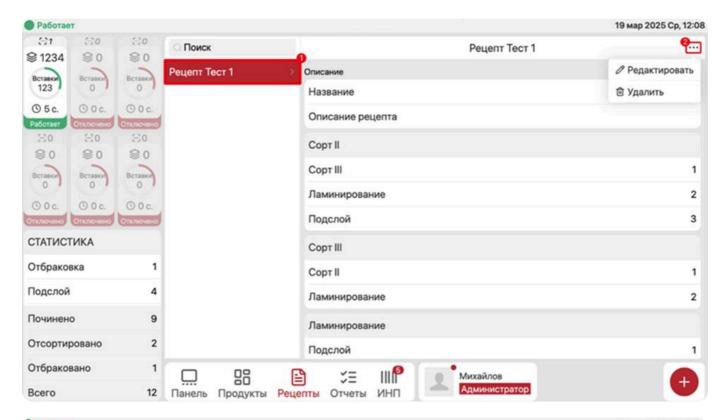


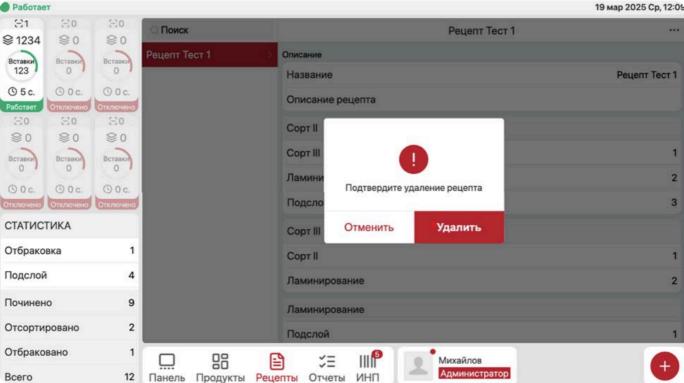
- 6.2. Editing a Recipe
- 6.2.1. Select a recipe from the list (label "1")
- 6.2.2. Open the menu ("...") (label "2")
- 6.2.3. Click Edit
- 6.2.4. You'll be redirected to the recipe creation flow with pre-filled data (see 6.1.2)





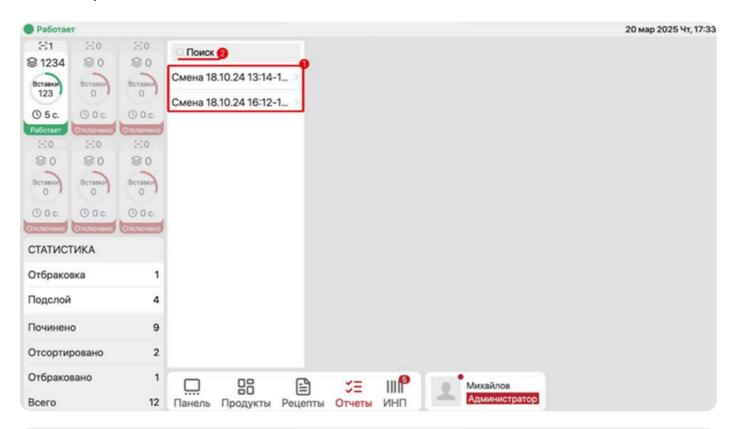
- 6.3. Deleting a Recipe
- 6.3.1. Select a recipe from the list (label "1")
- 6.3.2. Open the menu ("...") (label "2")
- 6.3.3. Click Delete
- 6.3.4. Confirm the action

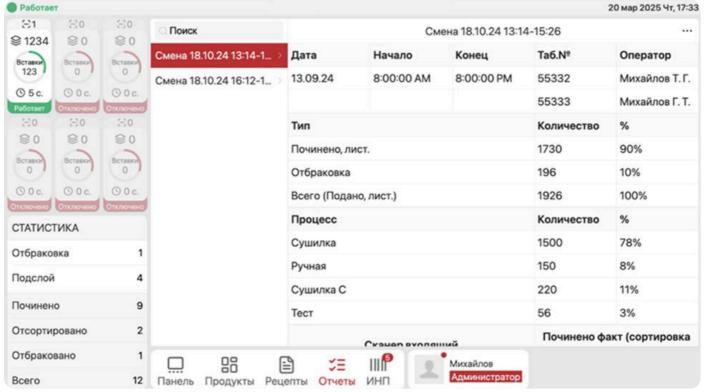




7. Reports

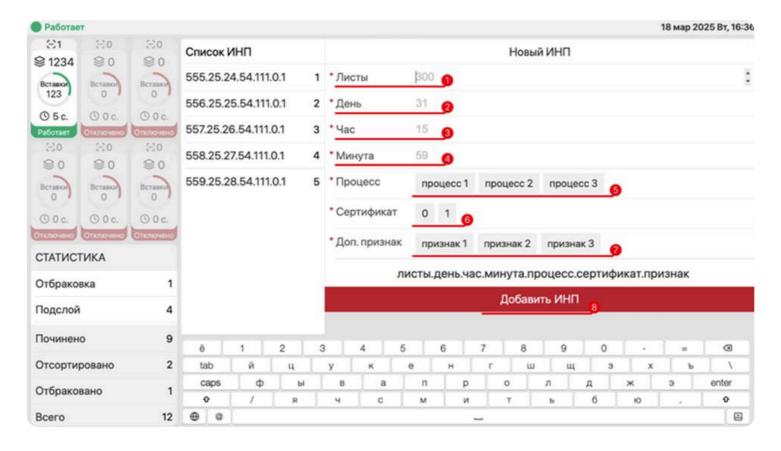
- 7.1. Select a shift from the list on the left side of the screen to view the corresponding report (label "1")
- 7.2. For quick search, use the Search field (label "2")





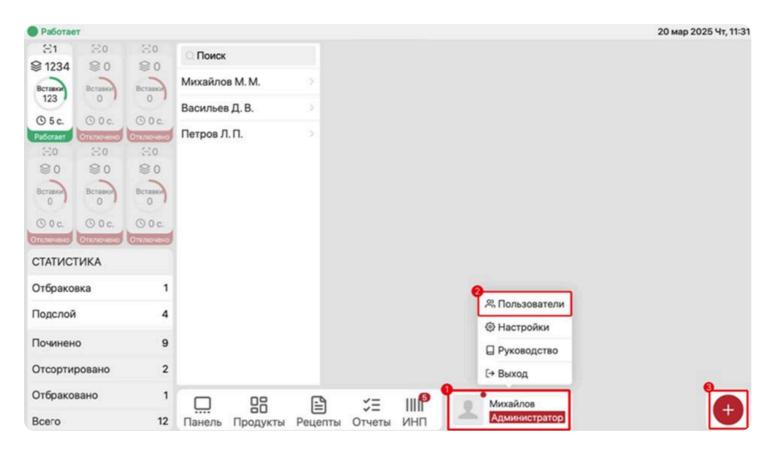
8. INP

- 8.1. Adding a New INP
- 8.1.2. Fill in the following fields: "Sheets", "Day", "Hour", "Minute" (labels "1-4")
- 8.1.3. Select the following "Process", "Certificate", "Additional Attribute" (labels "5-7")
- 8.1.4. Click the Add INP button (label "8")

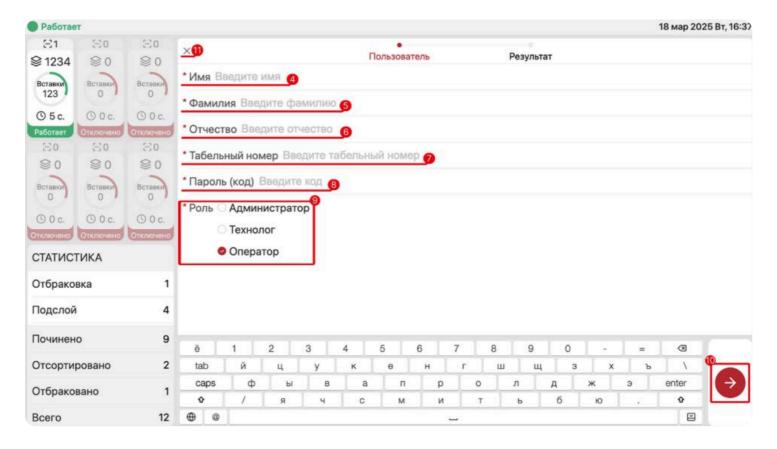


9. Users

- 9.1. Creating a User
- 9.1.1. Click on the block showing the user's surname and role (label "1")
- 9.1.2. Select Users from the menu (label "2")
- 9.1.3. Press the red "+" button (label "3")

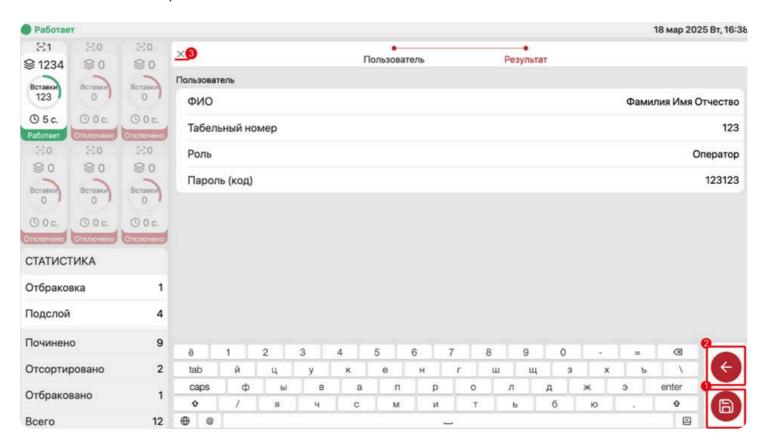


- 9.1.4. Fill in user information
- 9.1.4.1. Enter the following fields "First Name", "Last Name", "Middle Name", "Employee ID" (labels "4-7")
- 9.1.4.2. Set a unique 6-digit password (label "8")
- 9.1.4.3. Select the user's role (label "9")
- 9.1.4.4. Proceed to the next step (red arrow pointing right label "10")
- 9.1.4.5. To cancel, press the cross icon (label "11")



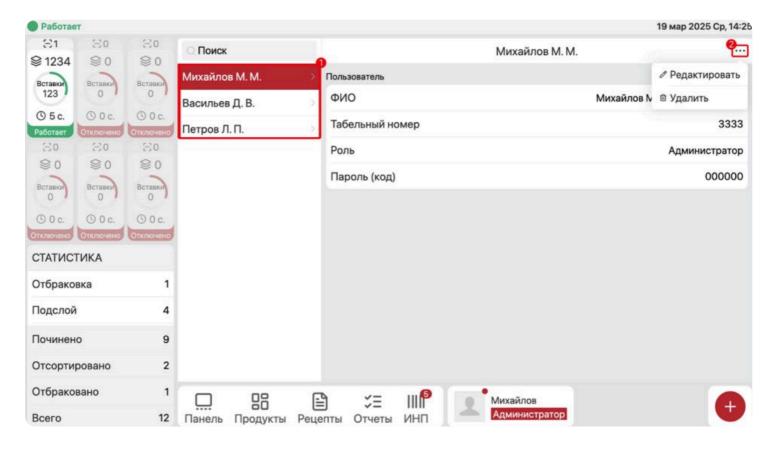


- 9.1.5. Result
- 9.1.5.1. Verify that all fields are filled correctly
- 9.1.5.2. Save the new user by clicking Save (red diskette icon label "1")
- 9.1.5.3. To edit something, return to the previous step (red arrow pointing left label "2")
- 9.1.5.4. To cancel, press the cross icon (label "3")



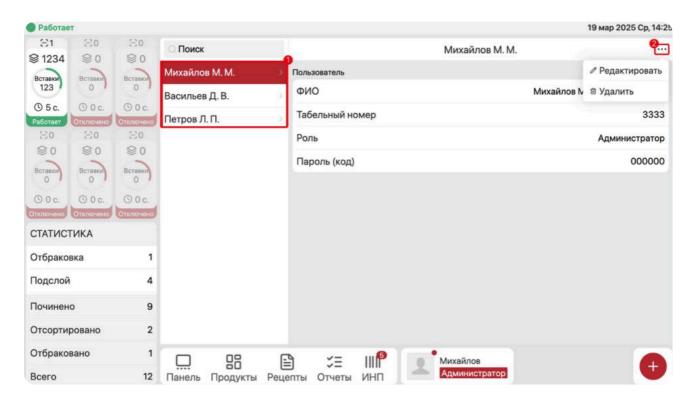


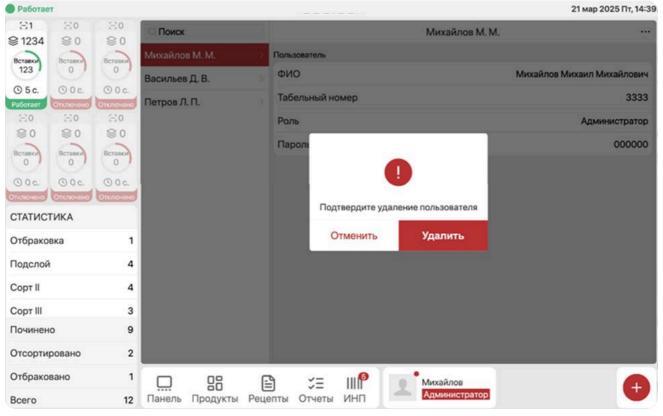
- 9.2. Editing a User
- 9.2.1. Select a user from the list (label "1")
- 9.2.2. Open the menu ("...") (label "2")
- 9.2.3. Click Edit
- 9.2.4. You'll be redirected to the user creation form with pre-filled data (see 9.1.4)





- 9.3. Deleting a User
- 9.3.1. Select a user from the list (label "1")
- 9.3.2. Open the menu ("...") (label "2")
- 9.3.3. Click Delete
- 9.3.4. Confirm the action





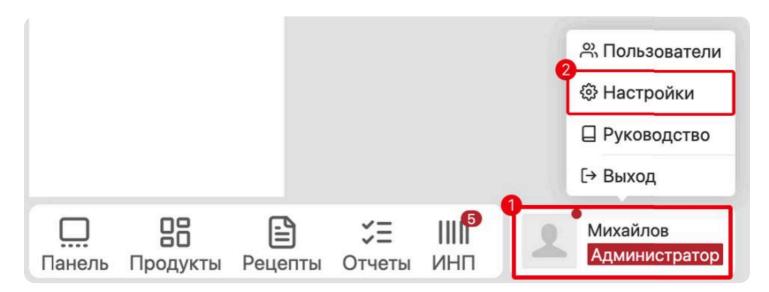


- 9.4. User Roles and Permissions
- 9.4.1. Operator
- 9.4.1.1. Select recipes
- 9.4.1.2. Start/stop the system
- 9.4.1.3. View statistics, help, reports, recipes, and products
- 9.4.2. Technologist
- 9.4.2.1 All Operator permissions
- 9.4.2.2. Create, edit, and delete recipes and products
- 9.4.2.3. Change system settings
- 9.4.3. Administrator
- 9.4.3.1. All Technologist permissions
- 9.4.3.2. Manage user accounts



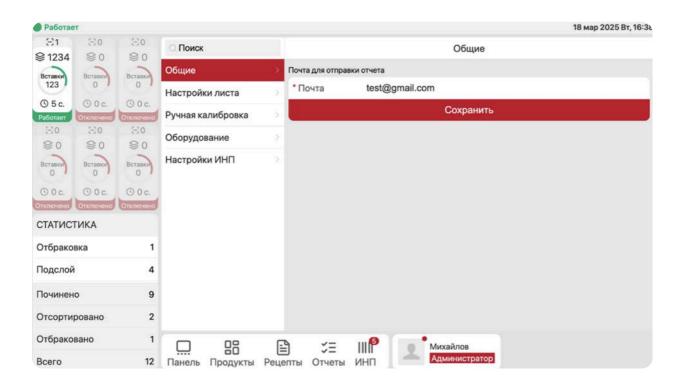
10. Settings

- 10.1. Click on the block displaying the user's surname and role (label "1")
- 10.2. Select Settings from the menu (label "2")



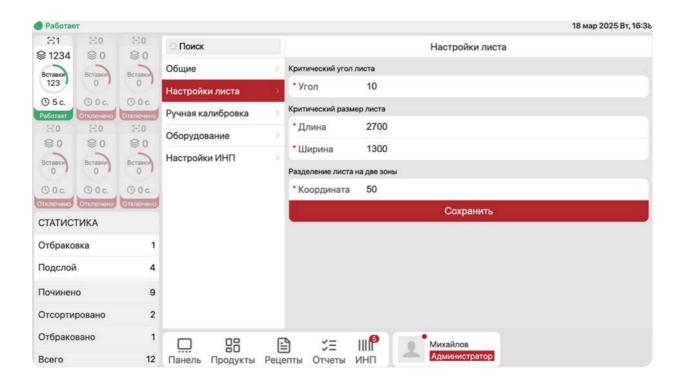
10.3. General Settings

10.3.1. Change the email address used to send shift reports



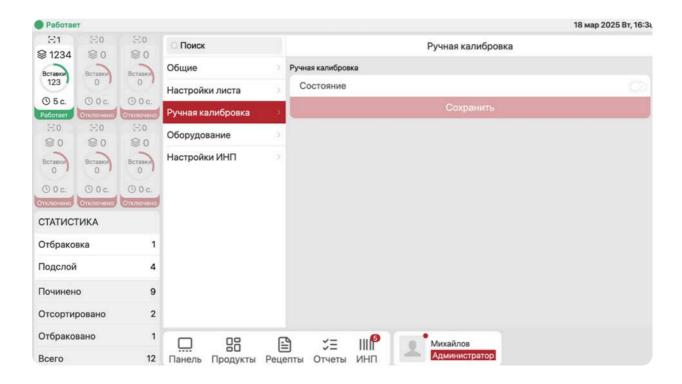
10.4. Sheet Settings

10.4.1. Set the critical angle (in degrees), sheet dimensions (length/width in mm), and zone partitioning



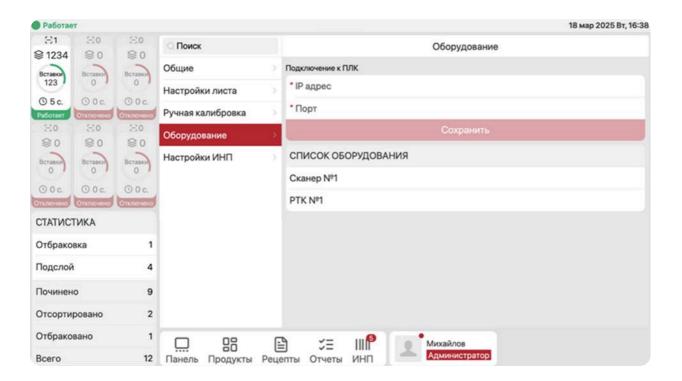
10.5. Manual Calibration

10.5.1. Perform equipment calibration manually

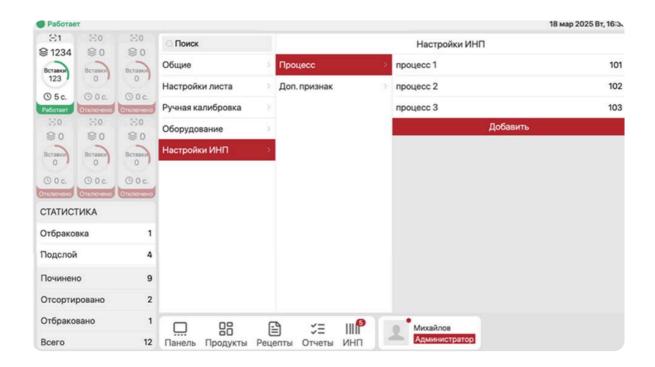


10.6. Equipment

10.6.1. Change the PLC's IP address and port, configure the equipment list



- 10.7. INP Settings
- 10.7.1. Adding a New Process
- 10.7.1.1. Press the Add button
- 10.7.1.2. Fill in the "Name" and "Value" fields and press Save



- 10.7.2. Adding an Additional Attribute
- 10.7.2.1. Press the Add button
- 10.7.2.2. Fill in the "Name" and "Value" fields and press Save

