



1 Introduction:

The user manual is a part of this product and contains important safety and operating instructions. Please read all operating and safety instructions before using the product. Use the product only as prescribed and in the designated areas of use. Keep the manual and when handing the product over to third parties, also provide all documents. The manufacturer is not liable for damages caused by uses other than those intended or improper handling.

ChipperX2 is a specialized device for sorting and managing chips with a diameter of 39 to 43 mm. The device is controlled via button on the front panel and a 7" flip-up color TFT display with a touch screen.

Chips are automatically sorted according to value or color into designated tracks as programmed by the operator. Chipper X2 is equipped with 10 chip tracks, each of which can be individually "tailored" for a maximum of 4 chip types. Any track (one at a time) can Alternatively, any track (only one at the time) can be used to store undefined / unknown chips. Each lane is being automatically filled until complete fulfillment. Subsequently, when a track is filled to capacity, it is automatically disabled and remains so until the roulette table operator removes the chips.

All runways are illuminated with an operating light that changes according to the state of the equipment. During standard operation, the lighting of the tracks is green, when the machine is paused, the green color flashes, when an error is detected, the operating light changes to red, and when the track is full, the given track is illuminated by a red light bordered by green. The start button is color coordinated as well.

2 Safety instructions and warnings:

- Read all safety instructions, warnings, illustrations, and technical data provided with this device. Failure to follow safety instructions and regulations may result in electric shock, fire, and/or serious injury.
- Keep the manual for later use or for the next owner.
- When using the device, the following essential safety precautions must be observed to protect against electric shock, fire and risk of injury. Before using this device, please read all of these instructions carefully and keep the safety instructions in a safe place.
- Do not operate the device when you are tired or under the influence of drugs, alcohol, or medication. A single moment of inattention while using the device can result in injuries.
- Do not rely on false security or skip safety regulations for the device, even if you are familiar with it after repeated use. Careless handling can cause injuries in a fraction of a second.

General requirements for device operation:

- The device is designed for sorting plastic chips with a diameter ranging from 39mm to 43mm and a thickness of 3.3mm. It is not suitable for ceramic chips. They are fragile and can peel off or break along the edges, potentially causing damage to the device or injury.
- Plastic chips with a diameter ranging from 39 mm to 43 mm and a total thickness of 3.3 mm can be inserted into the device.
- Do not insert foreign objects into the device! They may cause damage to the equipment, risk of fire, or electric shock.
- Do not place the device on unreinforced or unstable and sloping surfaces. When in operation, secure the device with the brakes on the transport wheels - at least 2 times.
- The device is intended for indoor use and closed spaces.
- The operating temperature must be between 18 and 28 degrees Celsius.
- The device must not be used for a purpose other than that defined by the manufacturer.
- Nothing that has not been defined by the manufacturer may be inserted into the device.

Risk of electric shock:

- If the device shows damage before installation, do not connect to the power source.
- The device may only be connected to a source of electrical energy as indicated on the production label.
- The device is intended for use with an electrical grid in the range of 110-240 V, 50-60 Hz.

- Connect only using the supplied power cable to a stable, grounded power grid. Voltage fluctuations may cause issues with sorting and operating the equipment.
- Do not connect the device to the electric if the power cable is damaged.
- A damaged power cable must be replaced with a new one approved by the manufacturer.
- In electrical installations, a protective conductor system must be installed according to the relevant standard.
- The socket for connecting the device must be freely accessible.

User groups:

- This device is not suitable for use in places where children may be present.
- Operating the device and approaching the device by a person under 18 years old is prohibited.
- This device must not be used by persons with mental, physical, or sensory disabilities.
- The device may only be operated by a person instructed, trained by the manufacturer or its contractual partners, and familiar with this operating manual.
- Persons who can operate this device are listed in the list of trained persons (last page of the manual).

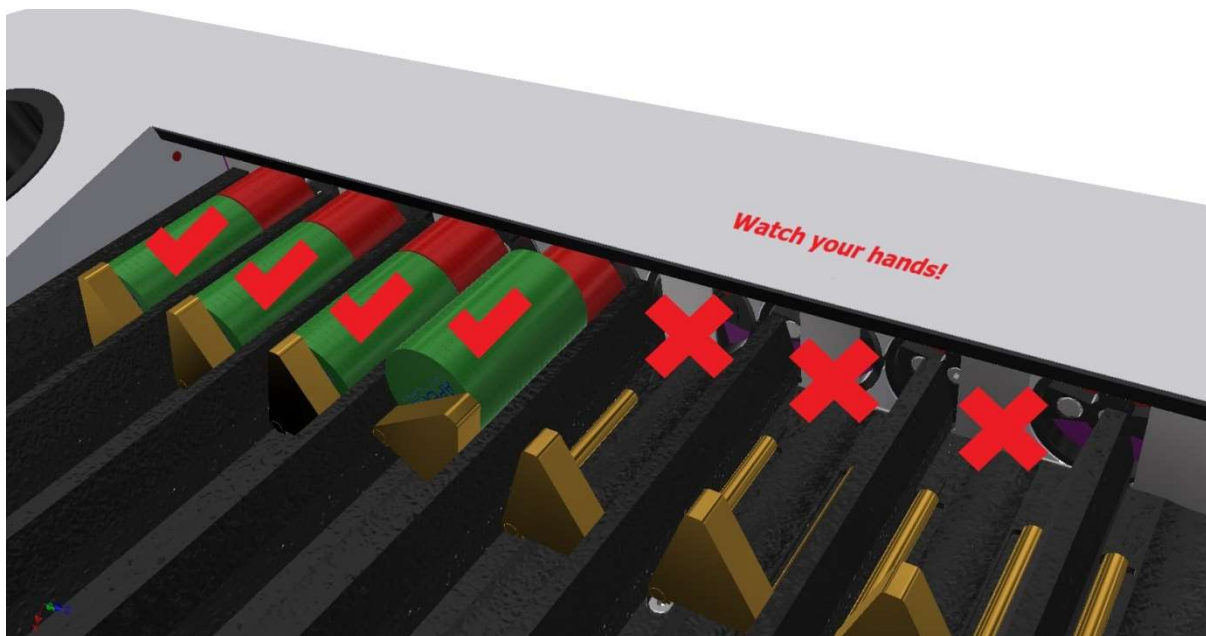
Risk of injury:

- The damaged device must be turned off and disconnected from the power source.
- If the device is damaged, its use is prohibited.
- Do not remove the filling tubes and covers, as there is a risk of contact with moving parts.
- The movement of the chip carriers is necessary for the functionality of the machine.
- Never touch the moving parts of the chip carrier, as there is a risk of painful finger injury!!!
- During the operation of the device, do not interfere in any way with the lower part of the stacking tracks in the separator area.
- To withdraw chips, use only the 'Pyramid' slider, which ensures the withdrawal of 20 pieces of chips. 'Pyramid' slider functional path ends at a distance of 34 mm from the separator. Therefore, there are still 10 pieces of chips left on the separator, which cannot be withdrawn with this 'Pyramid' slider. Never tamper with these chips while the chipper is running!!! Before removing these 10 pieces of chips from the bottom, or during any manipulation in this area, the chipper must always be in an inactive state, i.e. stopped!
- The device must not come into contact with liquids, excessive moisture, and jets of water.

Device maintenance and service:

- Maintenance and servicing of the device may only be performed by a person trained and authorized by the manufacturer or its contractual partners.
- Only a qualified person should inspect the device. This includes checking the supply cord, motor functionality, gearbox backlash, functionality of all stepper motors, chain backlash with chip carriers, springs on the pins and their functionality, optical barrier, end sensors, track filling sensors, display functionality, and 'start' button. Additionally, visually inspect all covers and sprues. If any part of the machine is damaged, its use is prohibited.

- Before cleaning, disconnect the device from the power supply by removing the plug from the socket or the device's power supply
- The cover can only be removed with a tool and by a trained person, ensuring that the device is switched off by removing the plug from the socket or the device's power supply



Symbols on the device:



Read the user manual!



Risk of injury from contact with moving parts machine

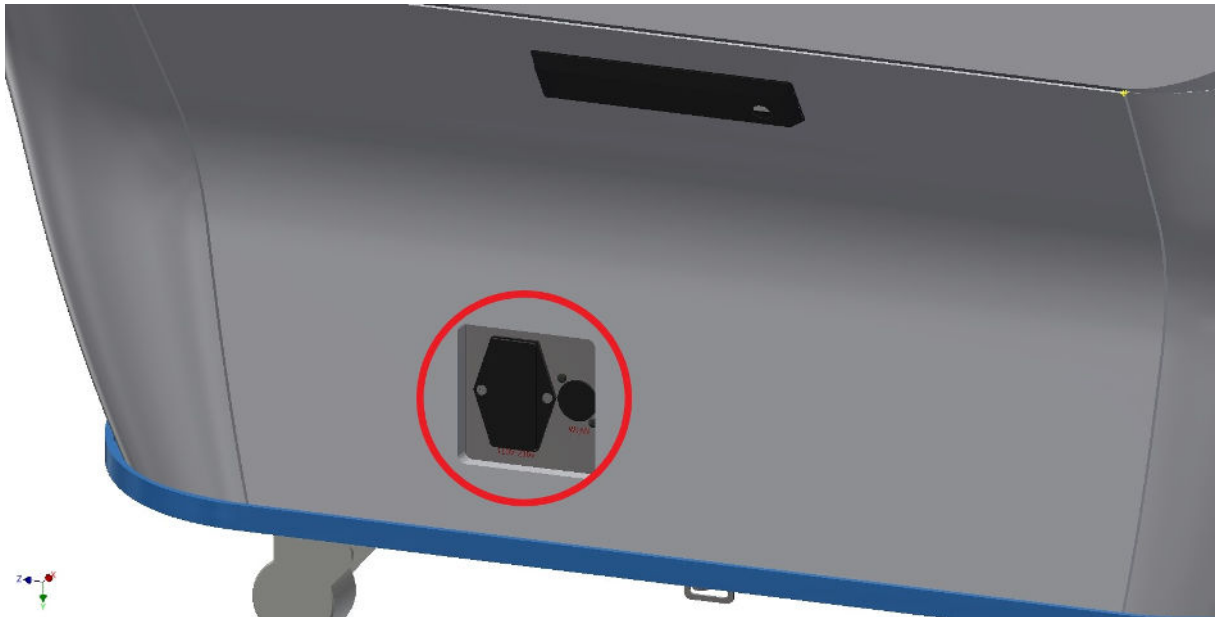


Do not insert fingers into moving parts of the machine

3 Turning on the device

The CHIPPERX2 can be put into operation and operated only by trained persons listed in the list of trained persons (see the last page of the manual)

To switch on the device, use the black switch located on the lower front side, near the input for the network cable. The input voltage ranges from 110V to 240V and is protected by a T3.15A fuse.



After the device is switched on, the control software launches and an initialization test of individual parts (modules) of the device takes place. (During user start-up, i.e. when the display is not being used (standard operation), all the other described parts are not visible, they are done automatically. If damage of some sort is detected or the power-on did not run correctly, all the lighting elements will light up with red. If the start-up runs correctly, the lighting elements will light up the trigger button and the LED strips above the tracks green).



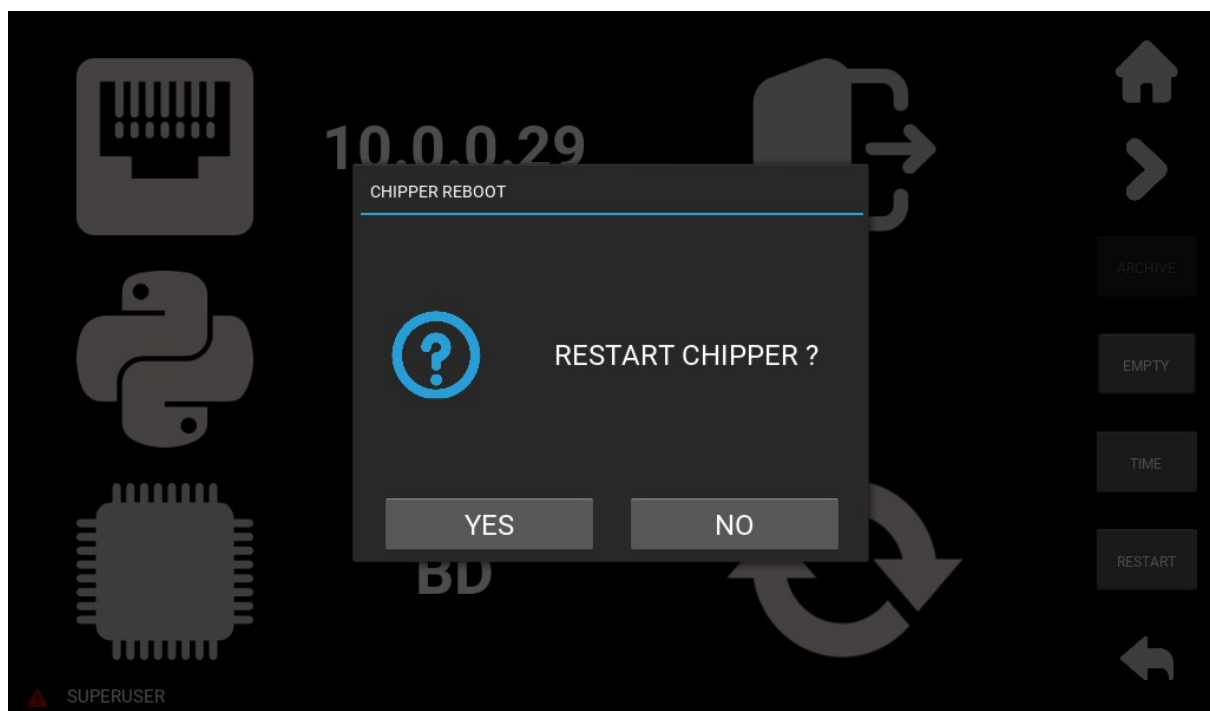
The readiness of the modules is tested in the following order:

- camera module
- main control module CPU
- motor module MMU
- stepper motor module SMU
- Control and LED lighting module FCU
- Lighting module (camera lighting)

If any of the modules shows a fault, the corresponding icon of this module turns red.



In this case, the operator can with a subsequent touch activate a screen, which shows the "status" of the devices' registers. After pressing the "RESTART" button, restarting the device can be initiated by the operator. The display is active only when the display is opened, this proces cannot be initiated with closed display.



After succesfully performing the initialization test of the device, the program will display the main menu.



At the right edge of individual screens of the control SW, there are icons or buttons that are used to control individual activities. Clicking on an individual icon launches corresponding function.

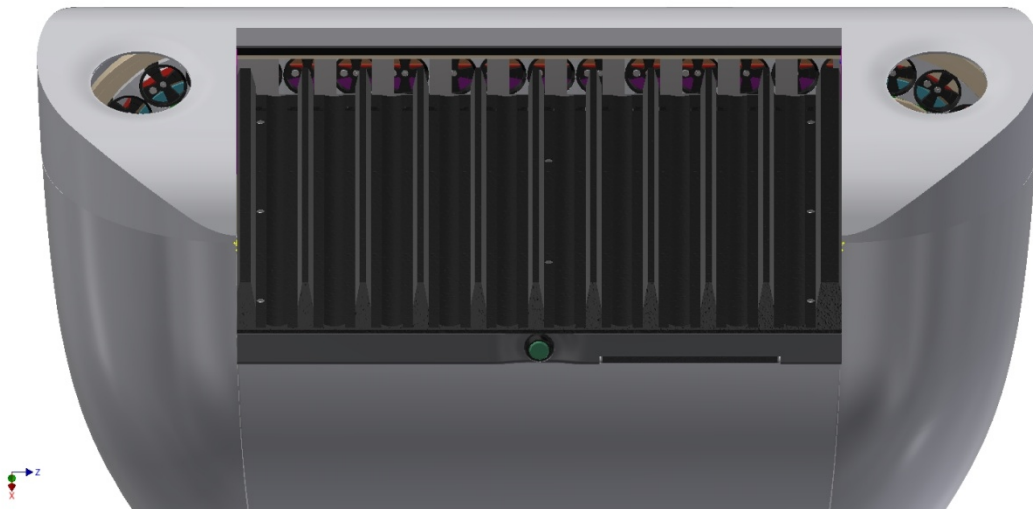
From top to bottom :

- Sort Start
- Learning
- Setup
- Stats

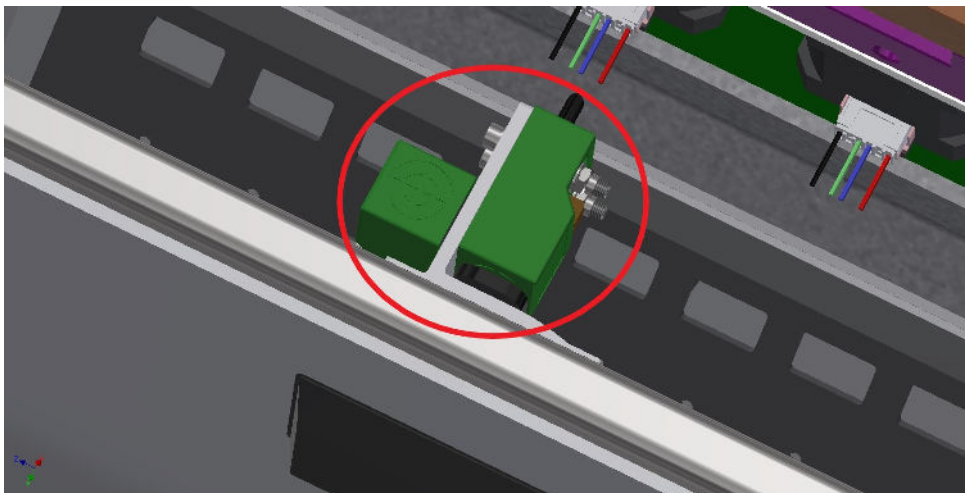
4 Operation and Safety:

The ChipperX2 can be operated only by a trained person who is familiar with the safety instructions (page 33) and the user manual, and is listed in the trained personnel register.

After starting the device and initialization tests, the machine can be put into operation. Readiness of a machine for operation can be recognized by the green LEDs above the tracks and the start button. The continuously running LED strip located above the back cover continuously changes the company's APEX colors. Before the start itself, check whether the space for the sorted chips is empty or whether it contains objects other than stored (sorted) chips. Subsequently, we can start the machine itself (chapter 8 - Sorting)



Front and back door of ChipperX2 device can be opened by using key locks. The front door covers a substantial part of the mechanics and almost all of the electronics, back door covers chips tray area. All of the perimeter covers are covered by the top cover, which is mounted on centering pins and held in position by magnets and further secured by screws on both sides. The side perimeter covers are inserted into the grooves in the lower part and are screwed to the holders in the upper part. All detachable parts (top cover and doors) are secured by induction sensors - when the top cover is dismantled or any door is opened, the device becomes inoperable. By closing the door again and putting on the top cover, the device is ready for operation. Only a trained person is authorized to open the doors and remove the covers.



The ChipperX2 operates on a voltage range of 110V to 240V. A tubular fuse (250V / T3.15A) is installed on the power supply. All the parts of the machine in need of a power source for their operation are connected by a 24V voltage (safe voltage). All peripherals (CPU, SMU, MMU, FCU, CMU) are covered, preventing access to the electronic parts beneath the cover.

5 Service and Cleaning:

Maintenance and servicing of the device may only be performed by personnel designated by the manufacturer or its contractual partners. It is strictly forbidden to manipulate with electronic parts, replace them, block safety sensors, short-circuit the optical barrier, or modify set values (except for calibration).

Failure to comply with these safety instructions will void the manufacturer's and seller's responsibility for any damage to the equipment, health, or property.

Cleaning is permitted only after ensuring that the device is turned off by removing the plug from the socket or the device's power supply. Before cleaning, we remove the front and back covers by unlocking the locks, flipping them out, and pulling them from the positioning groove. We clean with compressed air directly on the chip carriers, in the chip storage area, in the separator area, and on the lower support plate. If the carriers are very dirty and leave dirt on the chips, we wipe them with a clean cloth or paper towel. If we need to disinfect the carriers and the chip container, we use an alcohol preparation for hand disinfection by moistening a towel. After cleaning, allow it to air out and dry. Then, we reinstall both covers, secure them by locking the locks, and push the device back to the workplace.

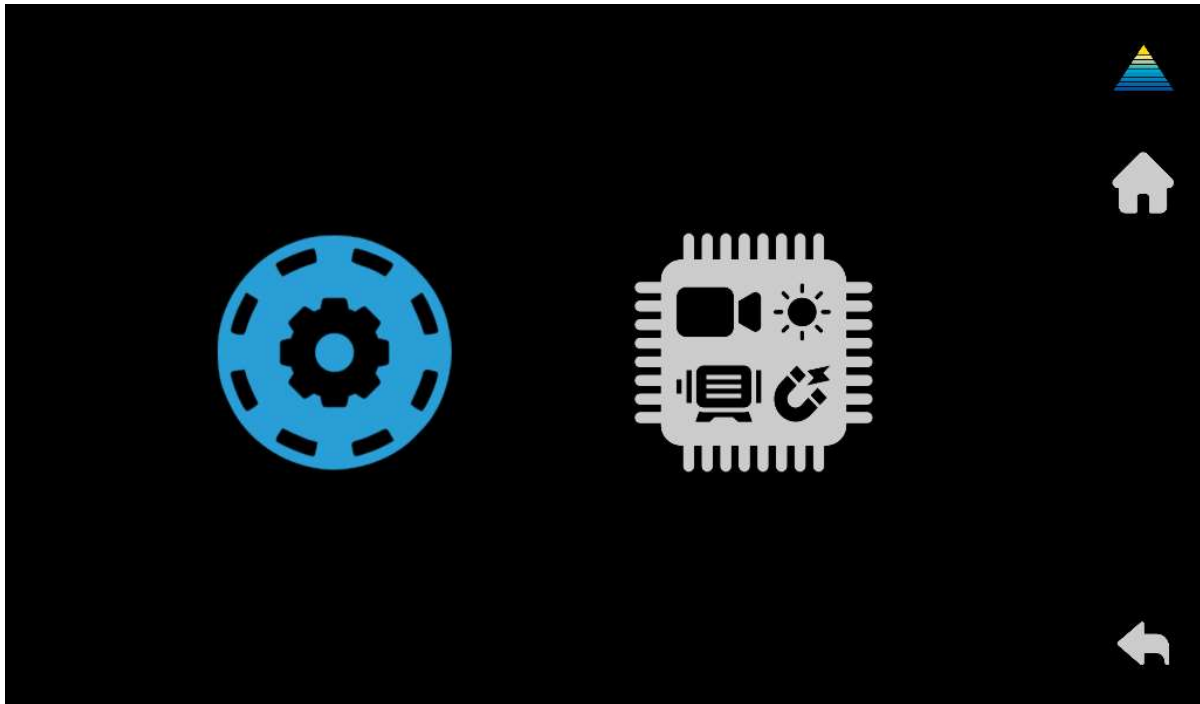
6 Setting:



The Set Up menu is entered by pressing the gear icon within the main menu.



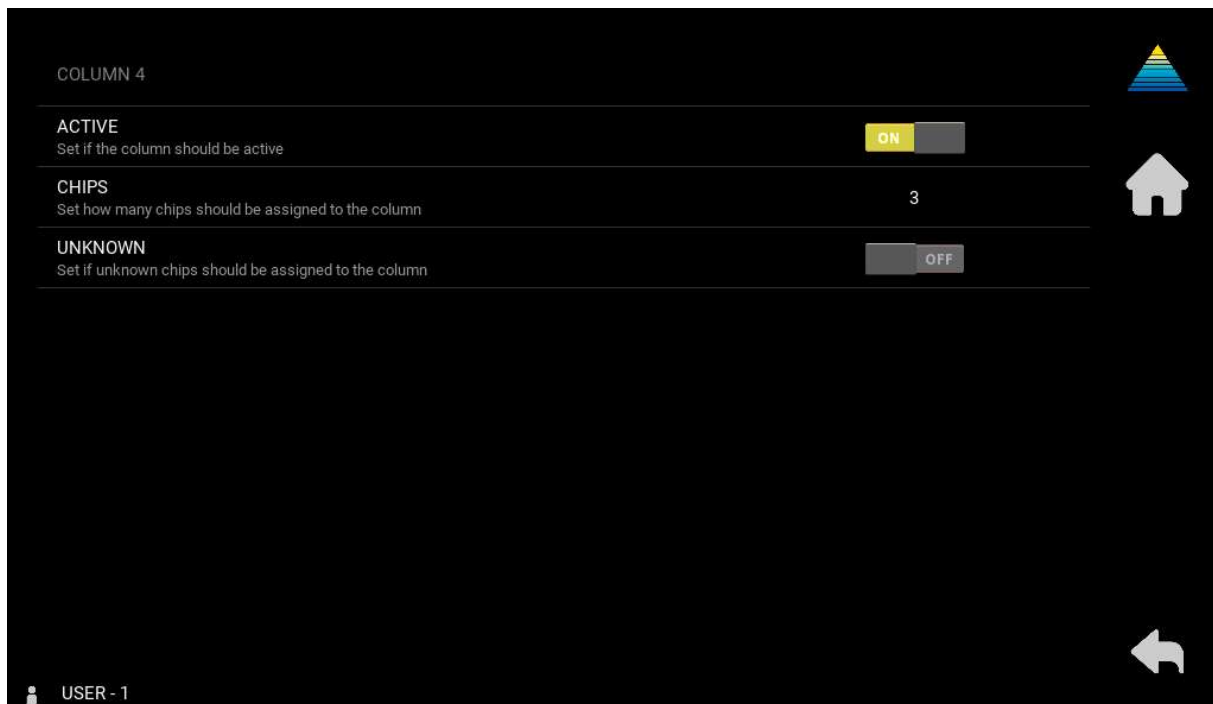
7 Tracks settings:



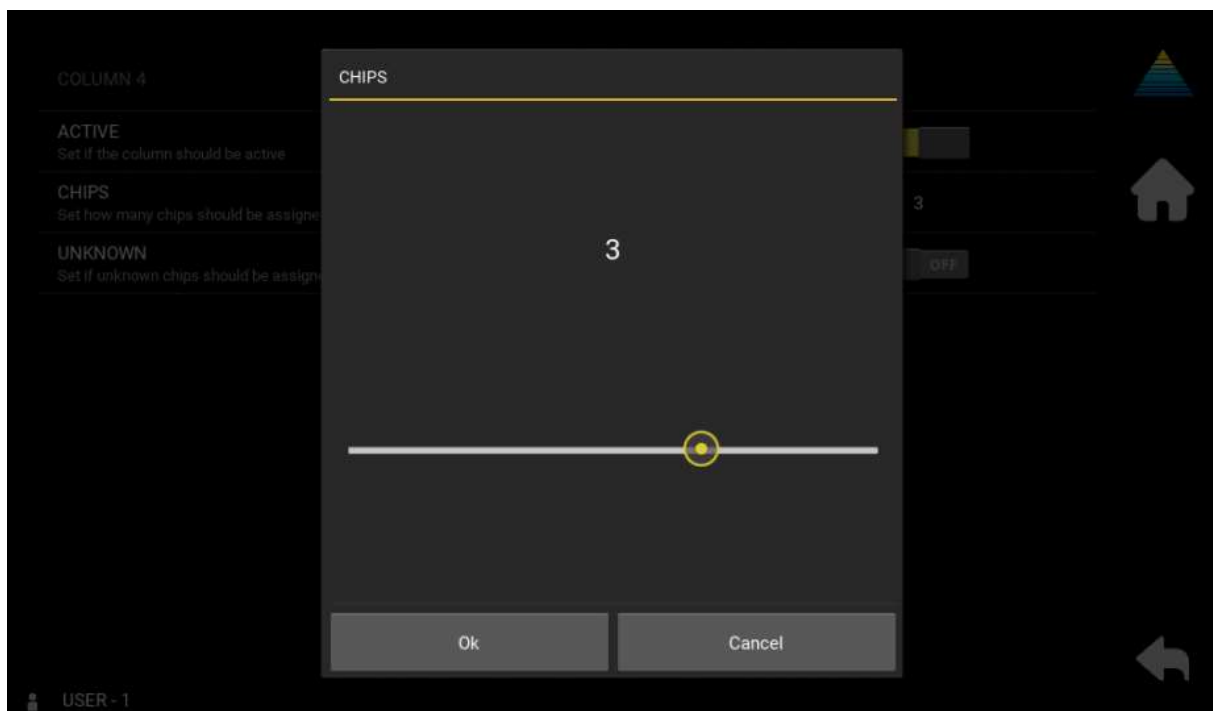
Pressing the wheel icon  within the Set Up menu the software opens the option to set up the chip tracks. The screen shows 10 icons representing each chip track. The status (programming) of the respective track is indicated by the color of the icon (yellow color indicates the track is active) and the icon in the form of a column of chips located on the right. The number of chips shown to the right of each numbered icon indicates the number of chips assigned to the certain track. A track that is programmed to collect "unknown" chips has a "question mark" icon on the right.

7.1 Settings the track parameters:

The program switches to the parameter setting mode for the given track by pressing the chip icon. In the Activate line, turn the track ON or OFF. In the Chips line, choose the number of chip types that the track will be sorting. Unknown or unrecognized chips will be sorted by activating the Unknown option,. The Unknown option can only be activated in one track. To activate the Unknown option in another track it is necessary to deactivate the Unknown option in the previously chosen track.



Value of a specific parameter can be set by pressing the row of the specific parameter. (eg the value of the "CHIPS" parameter).

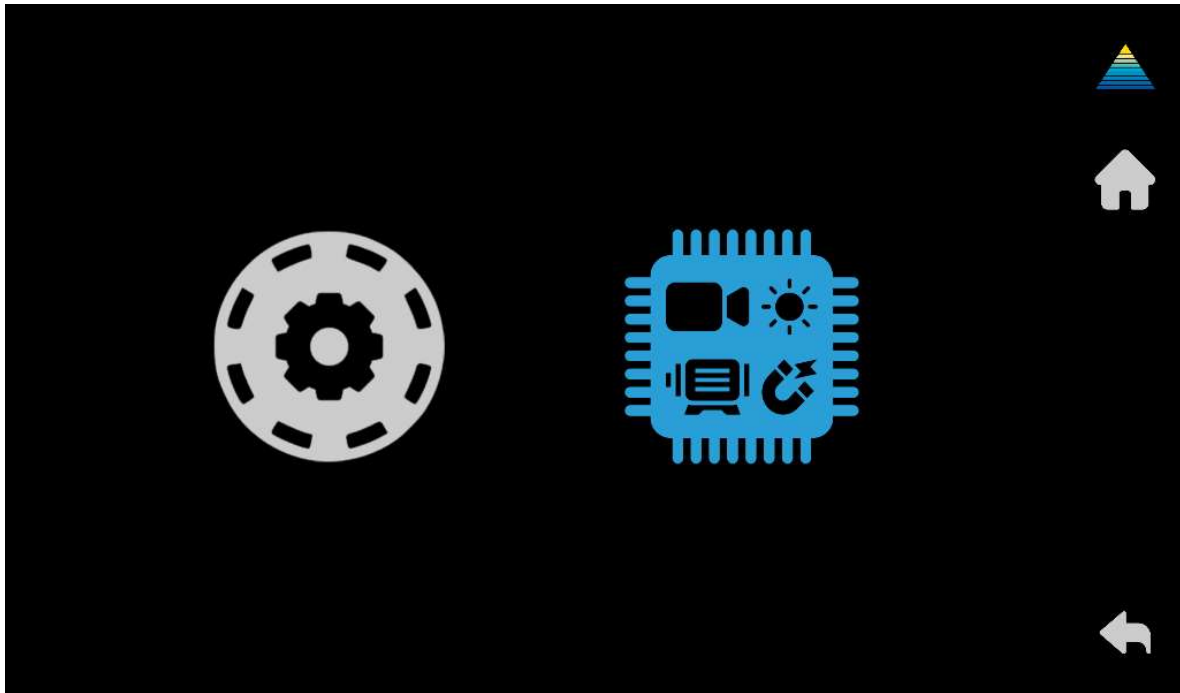


7.2 Service settings:

"SERVICE SETTINGS" submenu is entered by pressing the „TOOLS“



icon within the Set Up menu.

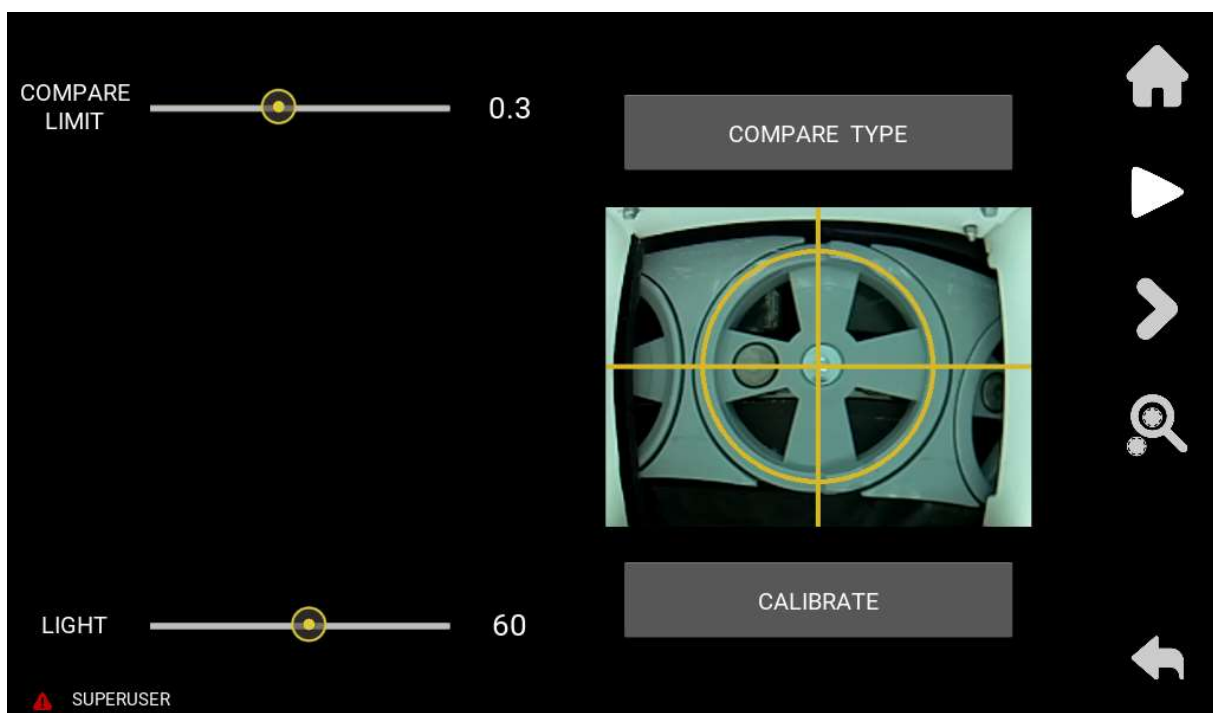


7.3 Setting the service parameters of the device:



Pressing the „TOOLS“ icon switches the program to the first screen of the “Setting of service parameters” mode. . The device camera’s “live view” mode is activated on the left side of the screen.

These parameters can only be set by authorised users within ADMINS and SUPERUSERS group. The parameters are factory set and it’s not needed for them to be changed.



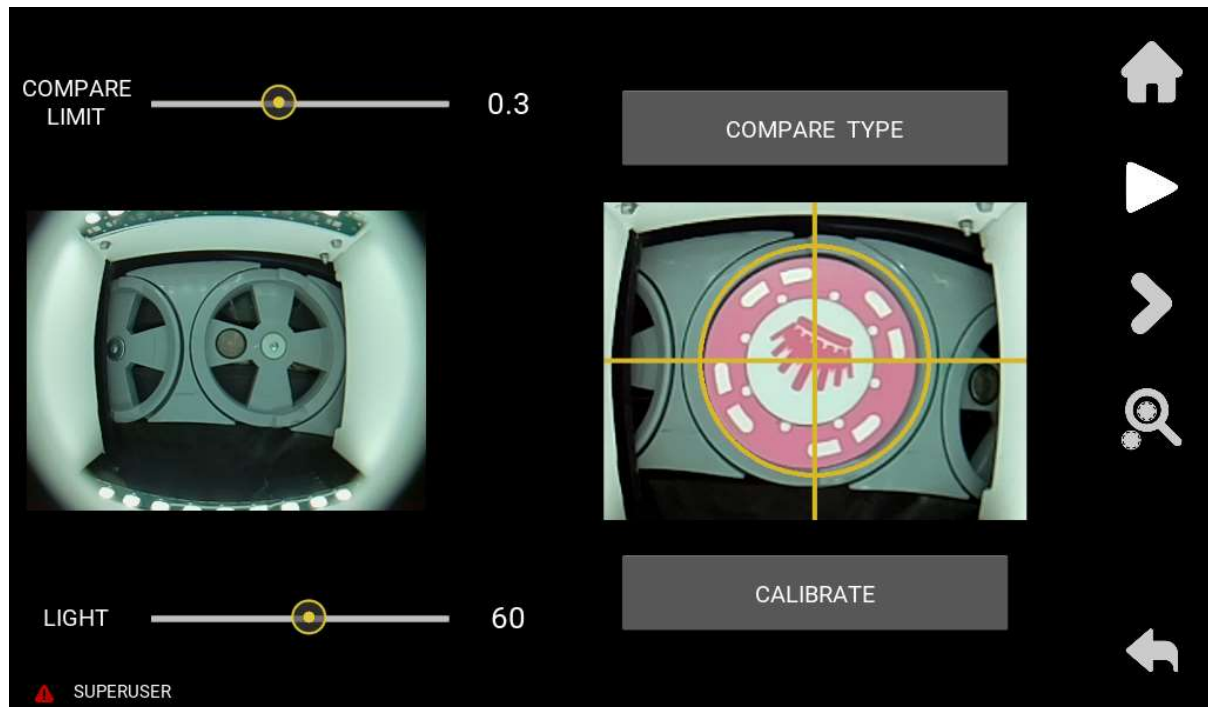
The operator can check the accuracy of chip capture settings.

The program switches to the mode of “focusing” of captured chips images by pressing the icon



If the captured chips images are not precisely centred in the circle within the “crosshairs”, the operator can center it by pressing the “CALIBRATE” option. This mode can be exited by pressing the

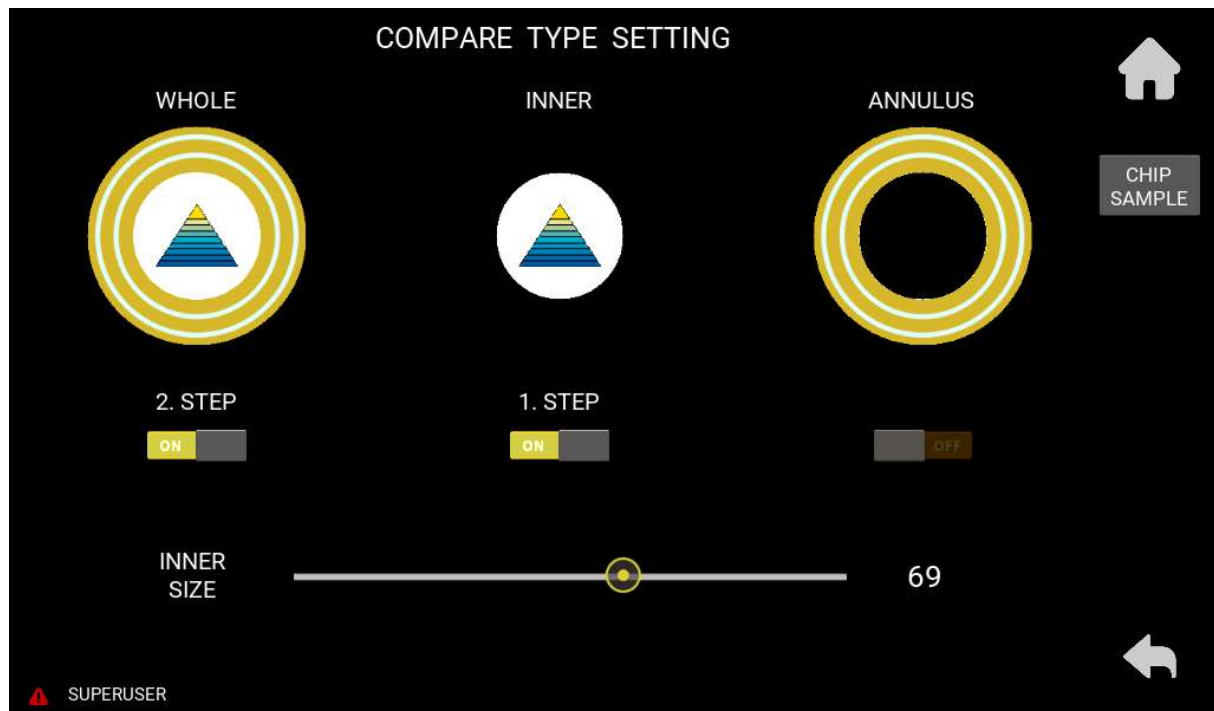
„pause“ icon



Changes made by the operator to the factory-set parameter values must be confirmed for the final entry by pressing the icon

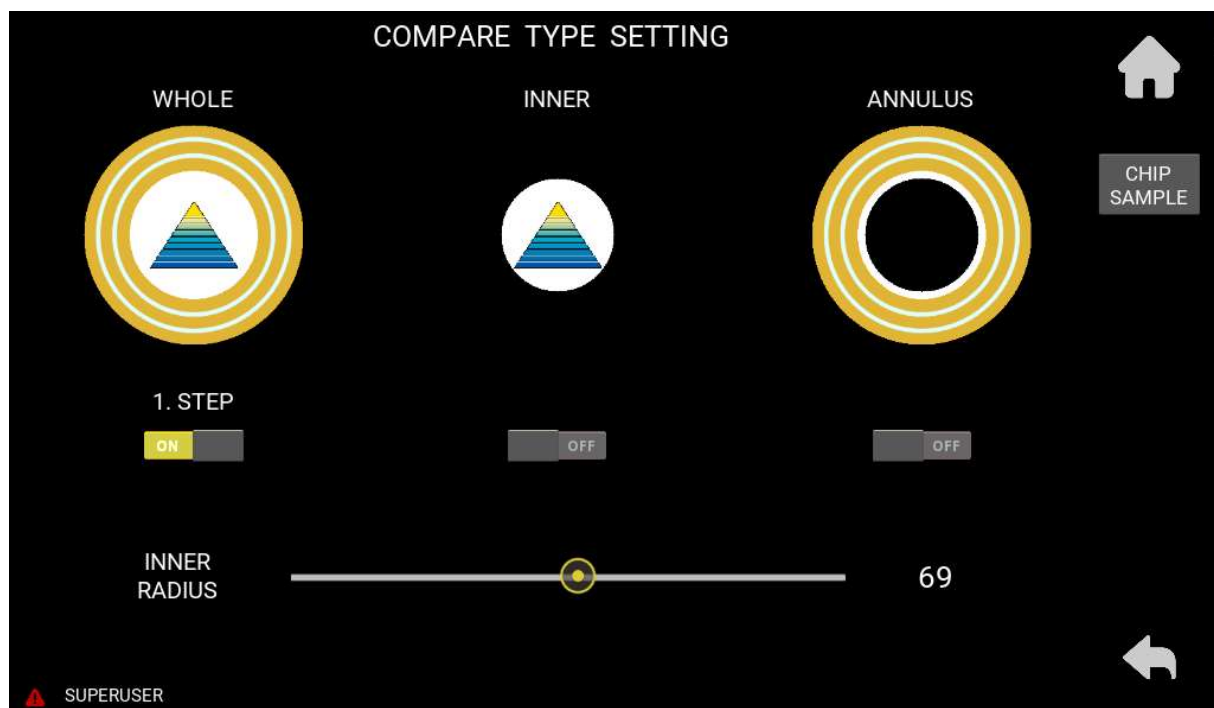


By pressing the “CALIBRATE” button, the program switches to the „capture“ mode of variants of empty chip cups images. Within a few minutes, the program records captured "variants" of images of empty cups under different lighting conditions and automatically exits the mode. Resulting images are subsequently used in chip „SORTING“ mode.

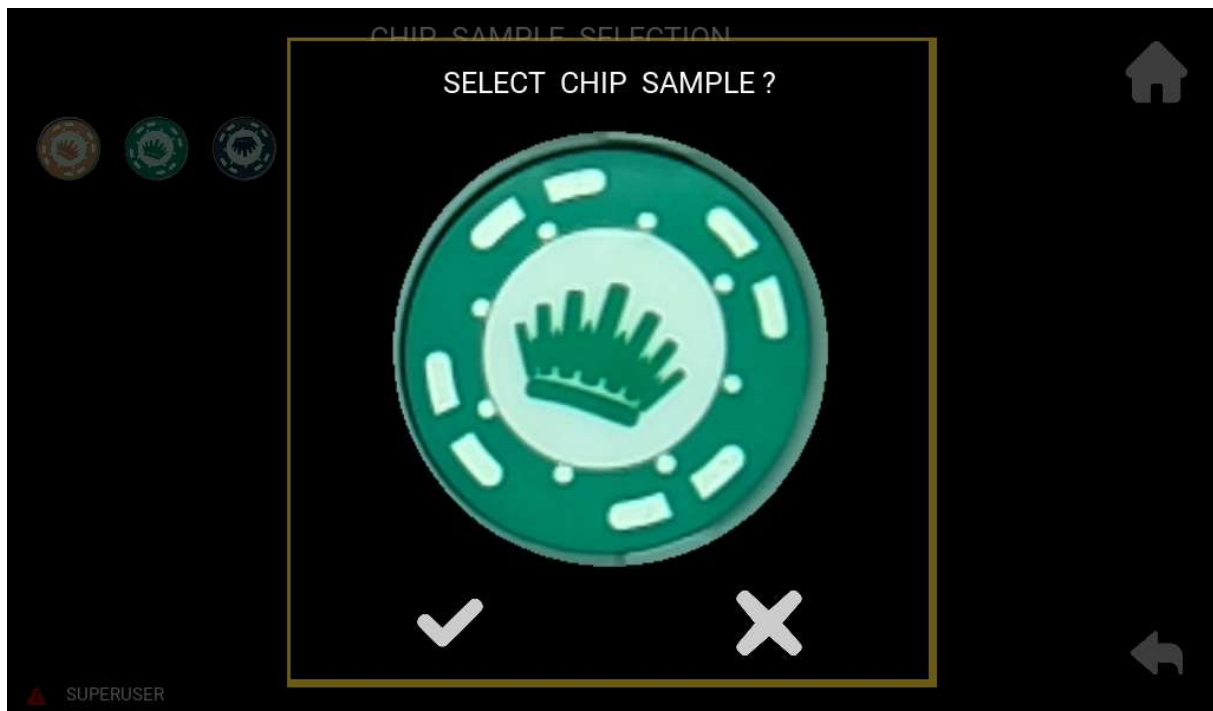


By pressing the “COMPARE TYPE” button, the program switches to the „compare type” mode, which allows to set the type of comparison of the captured chip images with the "tailored" chip images in the 1st step and possibly an additional 2nd step.

Compare types can be “WHOLE”, “INNER” or “ANNULUS” (i.e. a full circle, an inner circle or an annulus). In default mode Compare Type is set to WHOLE in the first step of comparison and INNER in the second step. Setting the parameter INNER RADIUS allows to change the radius for the inner circle or an annulus depending on chip variation.



By pressing the “CHIP SAMPLE” button the program switches to „CHIP SAMPLE SELECTION“ mode.



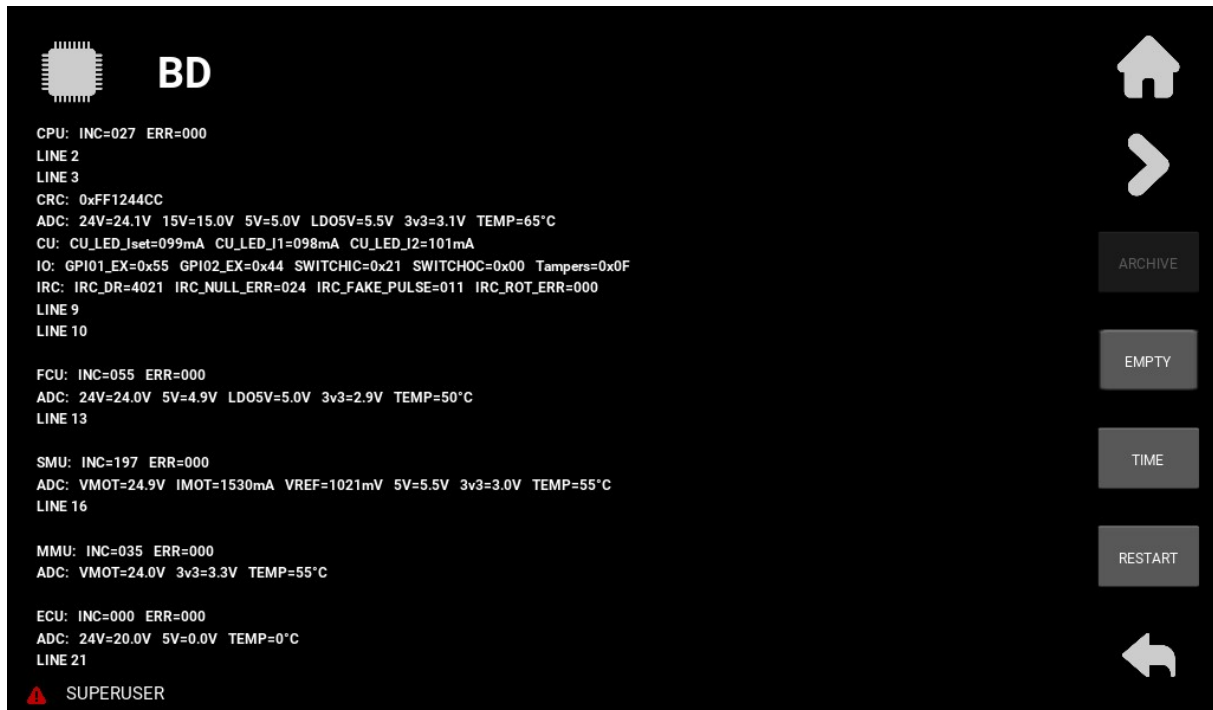
Pressing the  icon in a dialog box allows to choose a chip sample that will show up in the frame of the “COMPARE TYPE SETTING „ mode.

By pressing the  icon, the operator can switch to the second screen that shows the “status” of the device registers, as well as the IP address of the device if it is connected to the LAN network. (recommended due to online support)

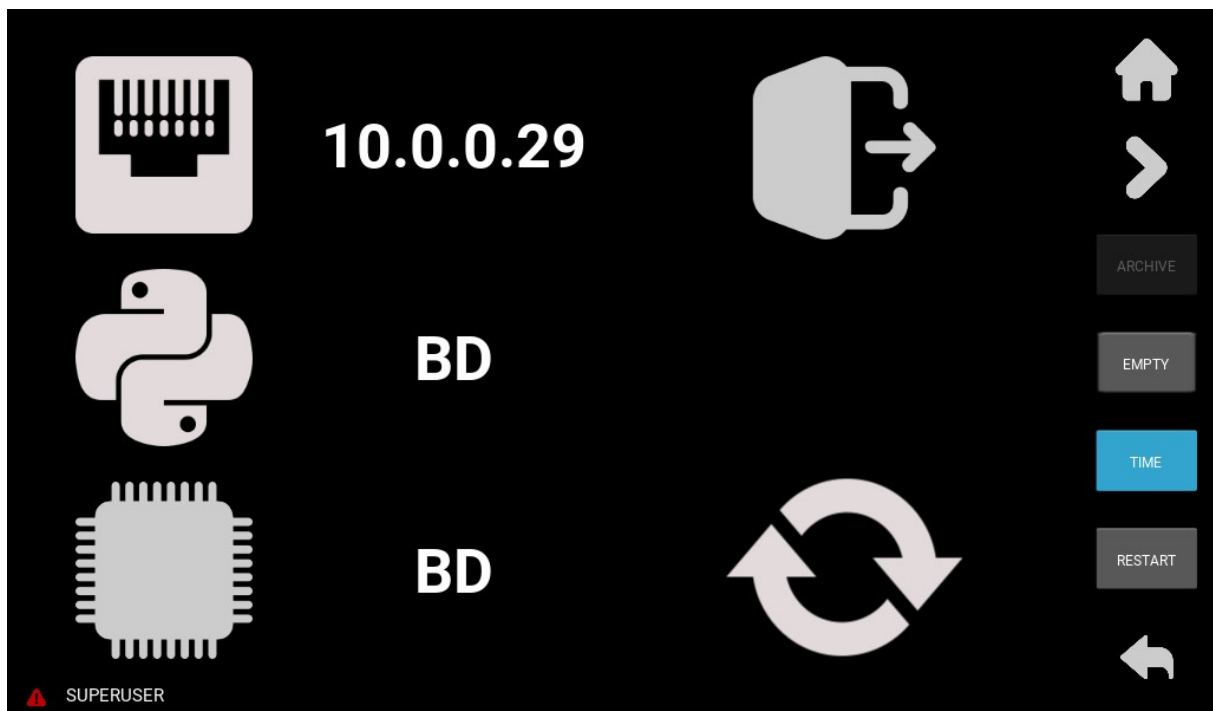


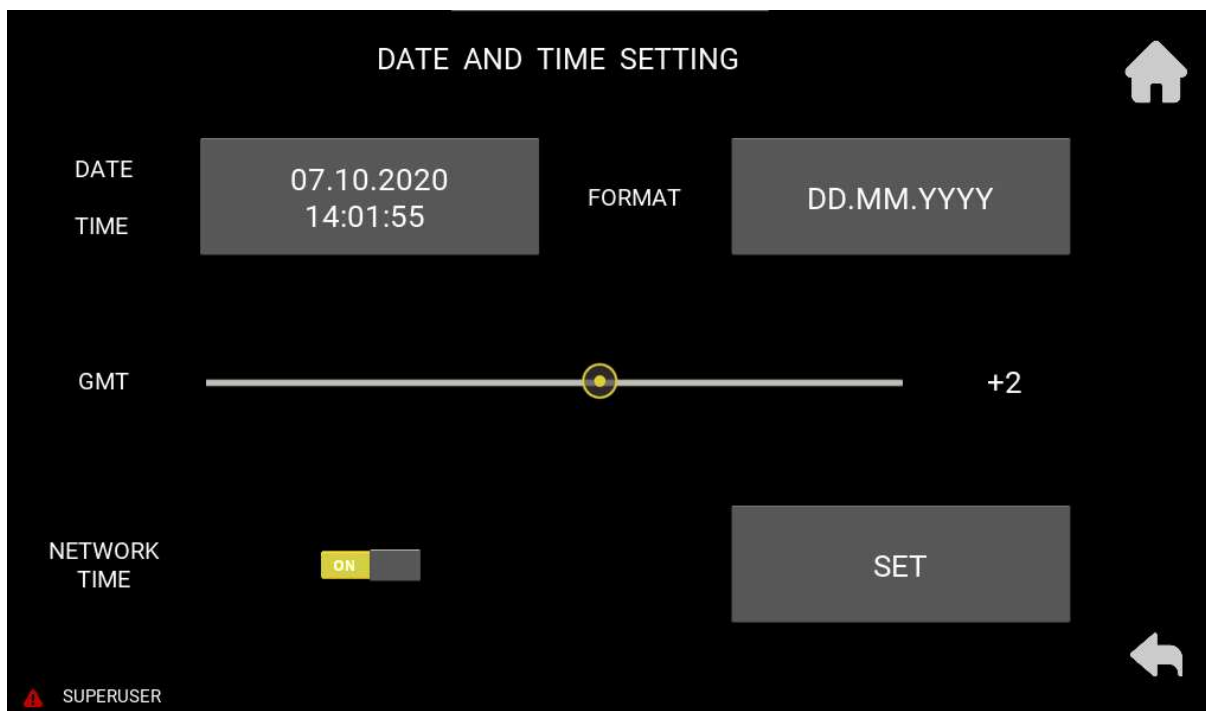
Changing the mode from the user environment to the ADMIN mode is performed by pressing the lock button and then entering the numerical sequence 1, 2, 3, 4 and enter. It switches to the SUPERUSER interface in the same way, but with a different combination of numbers. It serves only for service purposes and the number combination is known only to the service.

Chart with data about the device (software version, temperatures...) can be accessed by pressing the „BD“ button. In the upper left corner, after connecting the device to the Internet, the IP address is displayed. Connection to network is recommended for online support - service.



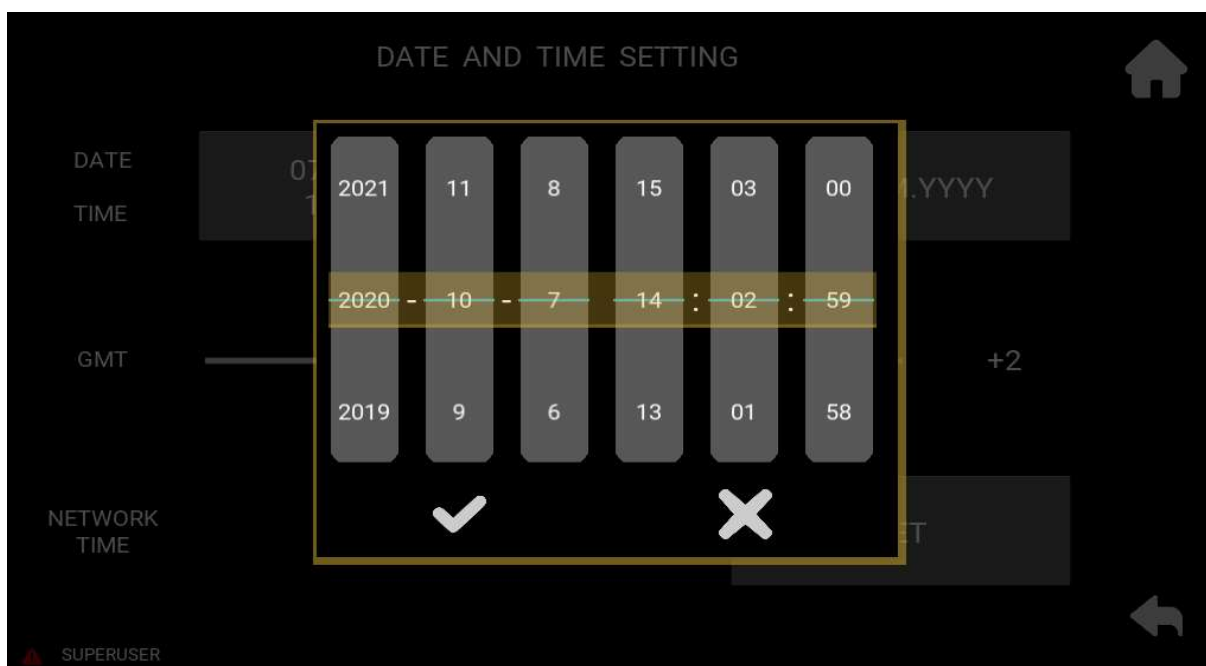
Having pressed the “TIME” button the operator can start “DATE AND TIME SETTING” of the device.



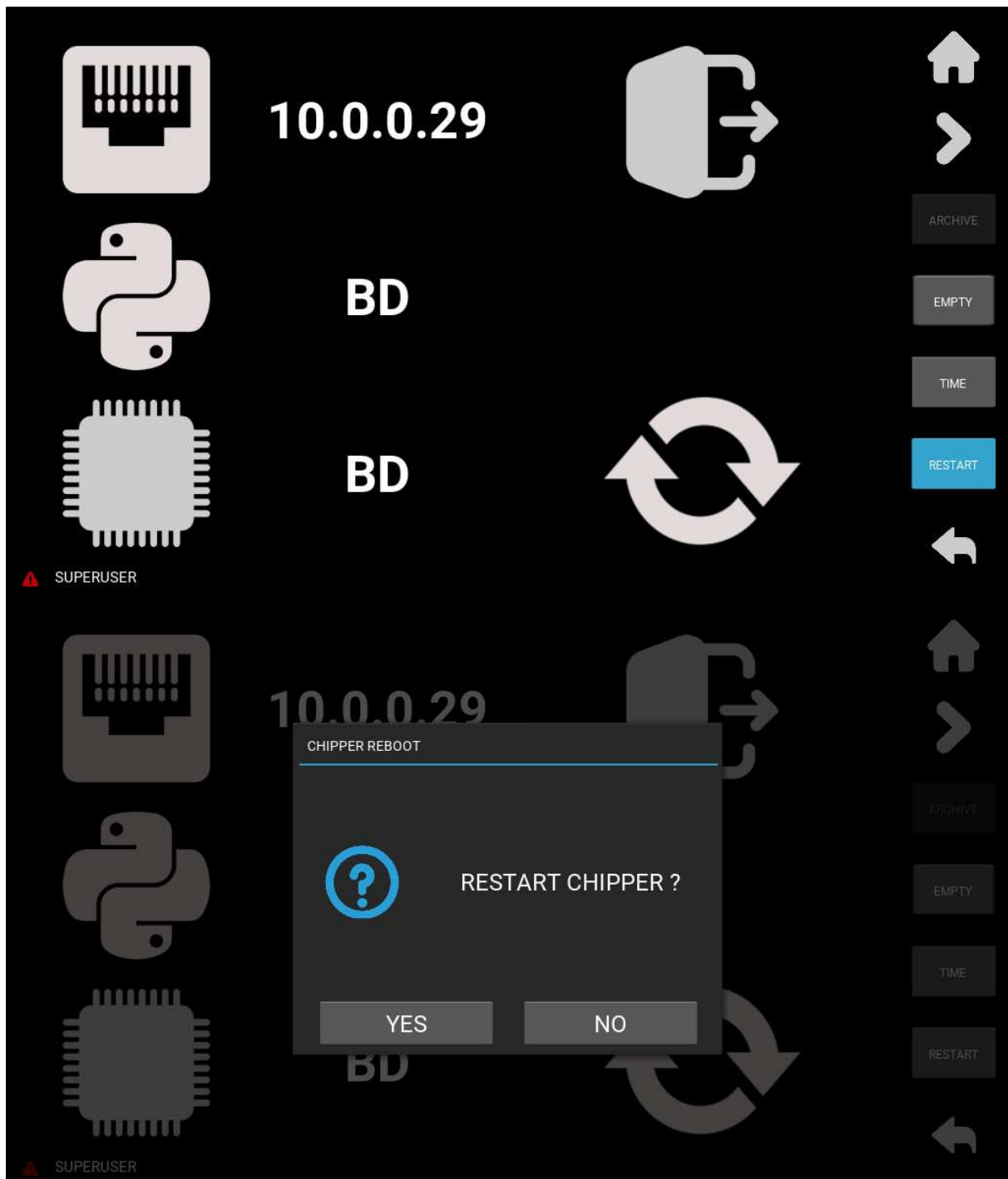


“DATE TIME” icon shows actual date and “local” time of the device that takes into account a set time shift given by value “GMT”. A format for displaying time can be set (pre-set is DD.MM.YYYY) by pressing a “FORMAT” button repeatedly (DD.MM.YYYY, DD/MM/ YYYY, DD-MM-YYYY, MM.DD.YYYY, MM/DD/YYYY, MM-DD-YYYY, YYYY.MM.DD, YYYY/MM/DD, YYYY- -MM-DD).

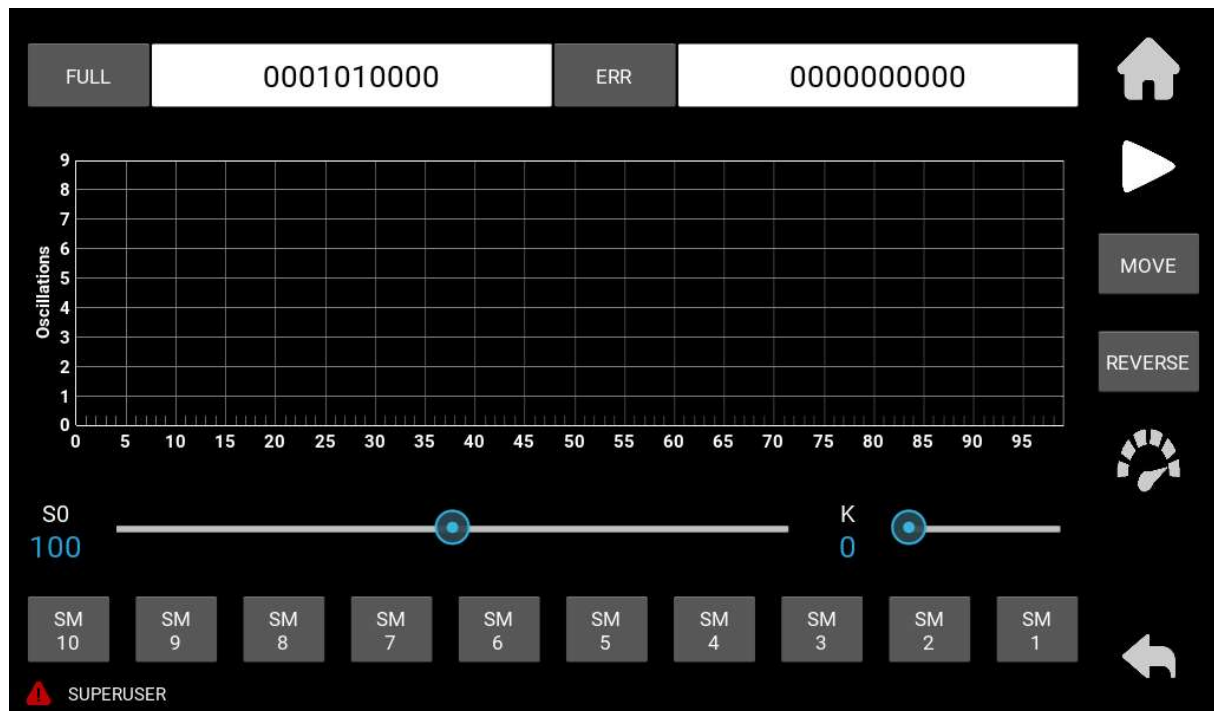
If a parameter “NETWORK TIME” is activated and the device is connected to the Internet, a pressing a “SET” button adjusts the time and date according to the internet. Date and time can be adjusted manually as well. “NETWORK TIME” parameter must be deactivated. After having pressed “DATE TIME” date and time can be set manually within subsequently displayed dialogue box.



By pressing “SET” button the operator can adjust date and time of the device according to manual setting. By pressing the “RESTART” button the operator restarts the device.



By pressing the  icon, the operator can switch to the third “testing” screen (applicable only for device service).



8 Learning:



By pressing the icon in the main menu, the program switches to the "Learning" mode.



The screen displays 10 tracks which are active according to the current track settings. The header of each track is indicated by a chips icon with a track number. To the right of the chip symbol is an icon in the form of a column of chips. 1 to 4 chips in the icon indicate the number of chips programmed for the track. The color of active track header is "blue", the color of the inactive track header is "grey".

After switching to learning mode, the tracks are still assigned chip images according to the last recorded "learning".



By pressing  icon an operator can start "a learning update" and "relearn" new chips. By repeated pressing of the icon the learning will "pause" or "run" again.



Before the first launch of "learning" session, the operator can switch the direction of learning -



assigning chips to tracks - by pressing  icon. The order of track filling can be either from right to left, thus track No. 1 is on the right, or from left to right - track No. 1 is on the left.





By pressing the  icon, the operator starts preparing a “new learning” session. Chip images recorded during the previous learning session will be deleted.



By pressing the  icon an operator will start a “new learning”. Subsequently, the assignment of newly scanned chips will begin from active track No. 1.



Pressing the  icon exits the "Learning" mode and performs the final recording and activation of "learning". At this phase, the sorted chip counters are reset (see Sorting mode) and the program switches back to the main menu.



Pressing the  icon exits the learning session without final registration and activation and returns to the main menu. By pressing the "image" of the chip, the operator can bring up a dialog box. In the dialog box, the operator can cancel the "detailed view" of the chip image by pressing the



 icon. By pressing the



 icon in the dialog box an operator can cancel a zoomed

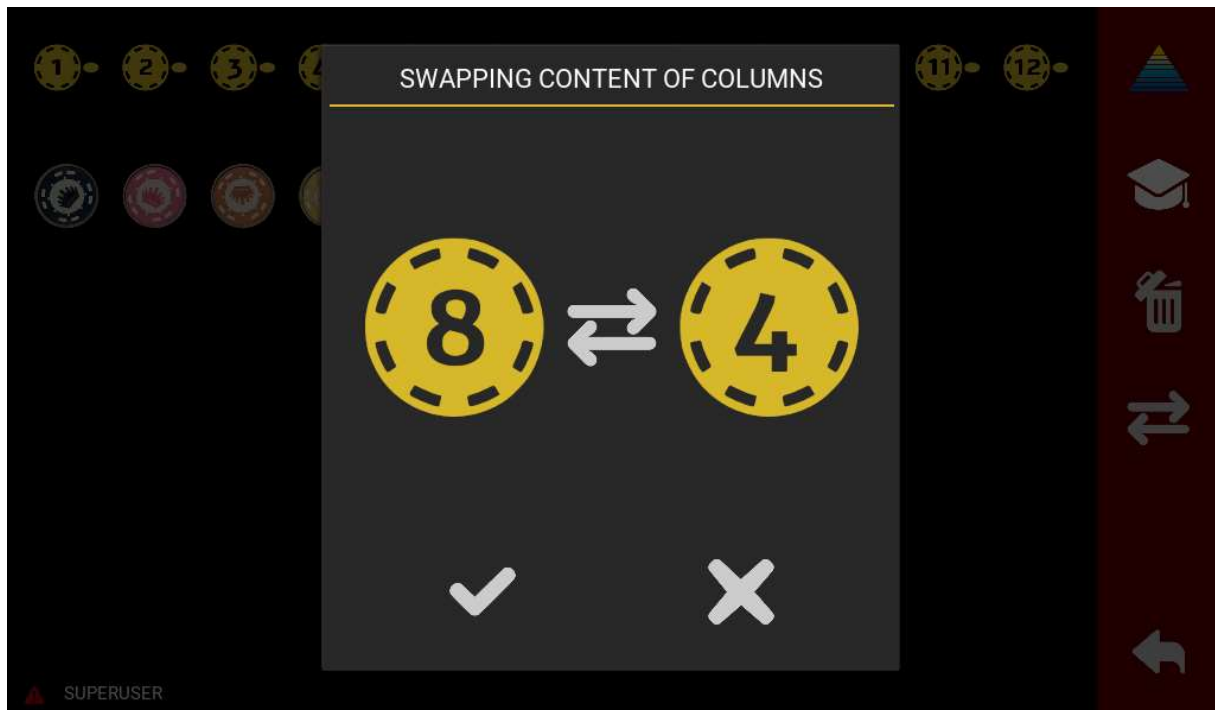
view of a selected chip. By pressing the icon an operator can cancel the assigning of a selected chip to a given track. This makes the given position unassigned. The next captured chip image will be assigned to this position.



By pressing the  icon, the operator can start the "move" mode of the chips image to another position in "learning". Subsequently, within 5 seconds, the operator can:

- mutually swap chips (i.e. swap their positions during learning) by pressing the “image” of a different chip
- move a chip to the first unassigned position in a given track by pressing on an icon of a chip with the number of a track in it

An operator can swap content of “learning” of any two track between them anytime. If an operator presses an icon of a chip with a certain number in the header and within five seconds presses an icon of a chip with a track number of a different track header a “SWAPPING CONTENT OF COLUMNS” dialogue box will pop up.



Pressing the



icon in a dialog box will swap “the tailored content” of chosen tracks between

each other

9 Sorting:

To access the „SORTING“ mode press the

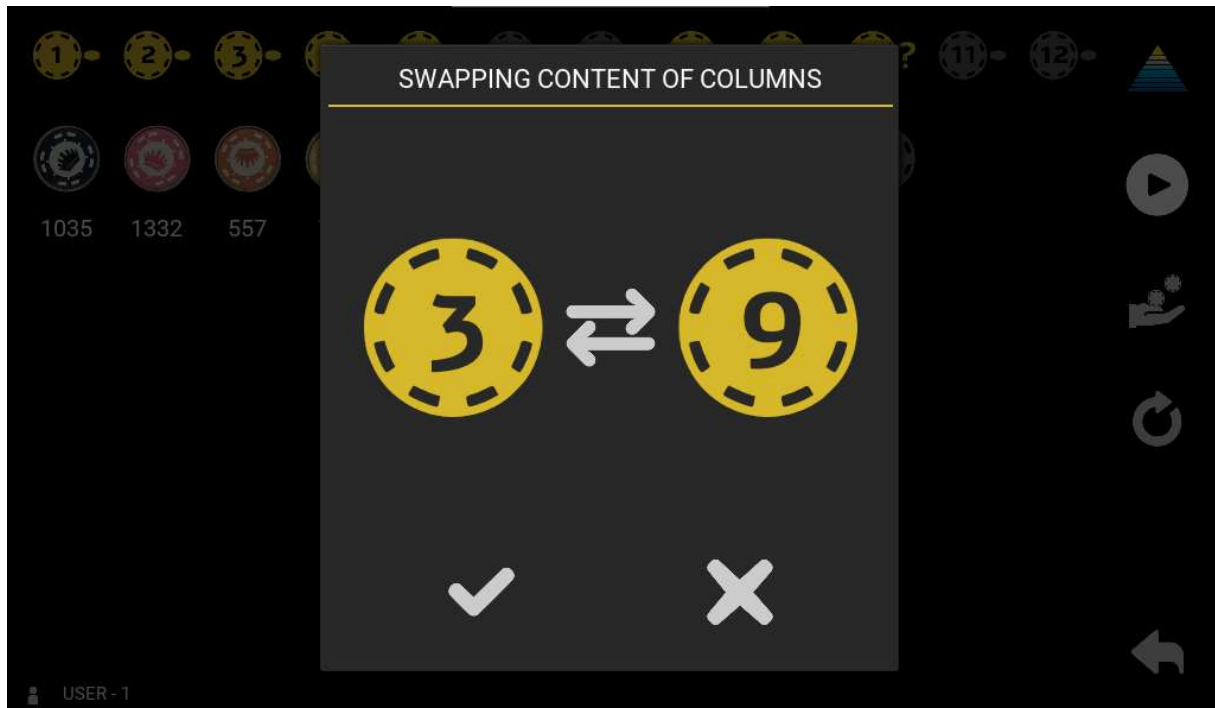


icon in the main menu.



The screen displays 10 tracks oriented according to the last recorded learning session. The header of each track is indicated by a chip icon with a track number. An icon pictured as a column of chips is displayed on the right. 1 to 4 chips in the icon indicate the number of associated chips for the track. The colour of the header of each active track (containing at least one chip assigned) is "Blue", the colour of the header of each inactive track is "grey". The tracks contain snapshots of the associated chips along with the counters. The counter indicates the number of sorted chips of a given type since the last "counter reset".

If the “sorting” of chips has not launched, an operator can switch the “programming” of any two tracks between each other. If an operator presses a chip icon with a track number in the header of one of the tracks and within 5 seconds also presses a chip icon with a track number in the header of another track, dialogue box is initiated allowing to swap content of column “SWAPPING CONTENT OF” columns.



Pressing the  icon in a dialogue box will swap the content of the columns between each other. By pressing an image of any chip, the operator can call up an information window containing an enlarged snapshot of said chip and its counter.





The operator starts „SORTING“ by pressing the

icon. Repeated pressing of the same icon



Pressing the icon, enables the operator to empty the device (see “Service Settings”)





Pressing the  icon allows the operator (with sufficient managerial rights) to “reset” the counters of sorted chips. Simultaneously, the ongoing sorting is completed and the statistics of this sorting are finally recorded.



By pressing the  “sorting” mode is exited, the program returns to the main menu and simultaneously, the ongoing sorting is completed and the final statistics of this sorting are recorded.



9.1 Automatic „user“ mode sorting:

The sorting mode can be switched on by the operator without using the display, i.e. when the "closed" display is switched off, as well, immediately after switching on the device by simply pressing the trigger button located on the front panel under the sorting tracks.

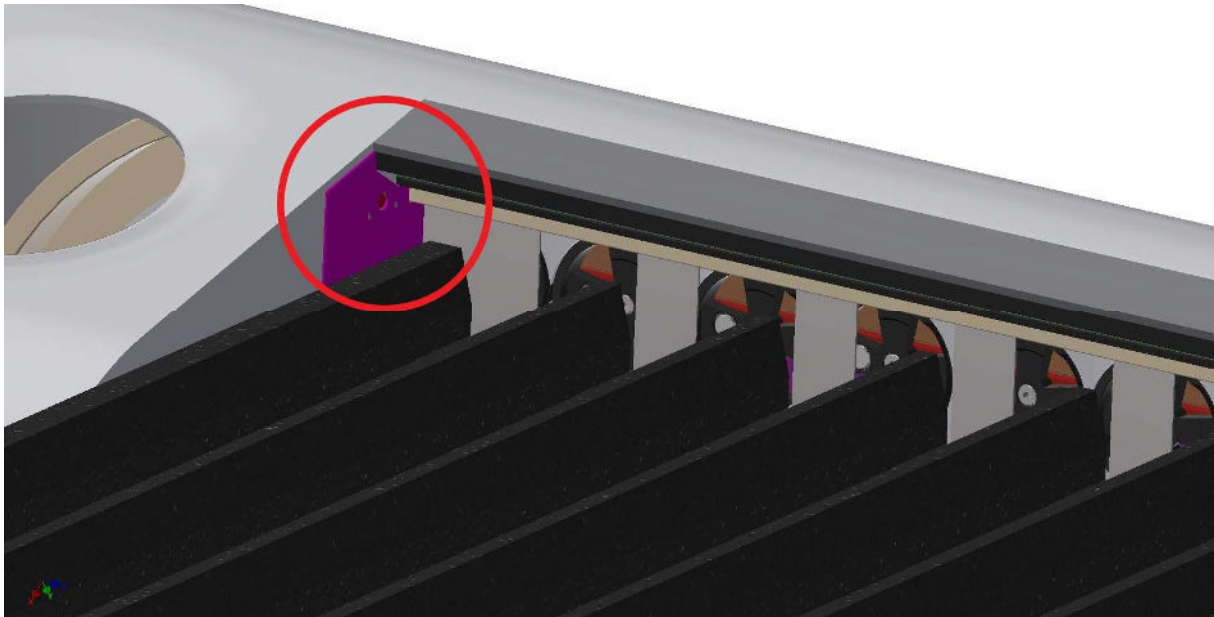


The device switches to sorting mode and automatically starts sorting chips at standard sorting speed. as long as the Chipper is empty and no chip is rotating in the chain, the chain rotates at a slow speed. At the first detection of the chip presence, the speed increases to sorting (approx. 500 chips per minute). If speeding up the sorting is necessary, press the start button for more than two seconds and the machine will run at its maximum speed (approx. 565 chips per minute).

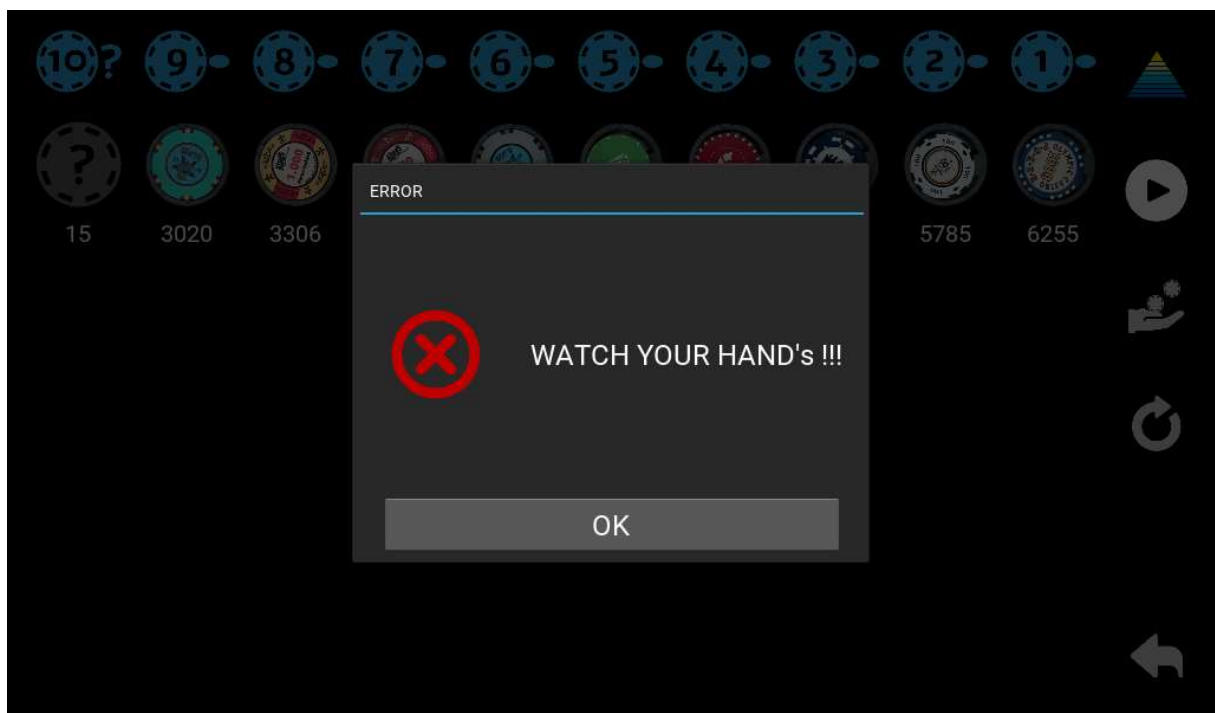
The speed will remain at the highest speed until it has sorted all the chips present in the stack. Then the speed will be automatically reduced to standard, or idle speed. When the chip is recognized again, the standard sorting speed will start. Starting and stopping the device is being initiated in the same way – by pressing a start button. In the event of a machine jam (poorly timed ejection of a chip, countering of the chip in the chain, etc.), the chain stops, moves back approx. 5 mm and tries to run again. As long as nothing prevents the movement of the chain, the machine continues its operation.

If the movement is still obstructed the chain backs up again, by a larger amount, and tries to run again, which can be repeated up to 4 times. If the repair fails, all the lights turn red. At this point intervention of a trained personnel is necessary to find out the cause of the jam, or malfunction of the device. A disabled machine will not automatically start into operating mode. It will remain in fault mode until the operator presses the start button again.

Optical sensor located in front of the chip separator, just above the stacking pad, ensures the interruption of the operation of the device if the operator tries to pick the last chips on the separator (10 chips remain there), which cannot be picked with the slider. The sensor reacts across the entire width of the stacker. Restarting is only possible by pressing the start button. The device will pause if there's an issue with placing the chips just above the separator, or if something enters the space above the chips at the sensor location.



When the transmitted optical beam between the sensors is interrupted, the device is immediately stopped and backed up approx. 5 mm in case a foreign object has entered the dangerous area (rotating chain and separator). If the display is active, i.e. open, the message "WATCH YOUR HANDS" will be displayed.



10 Statistics:



To enter "the statistics" mode press the icon in the main menu.



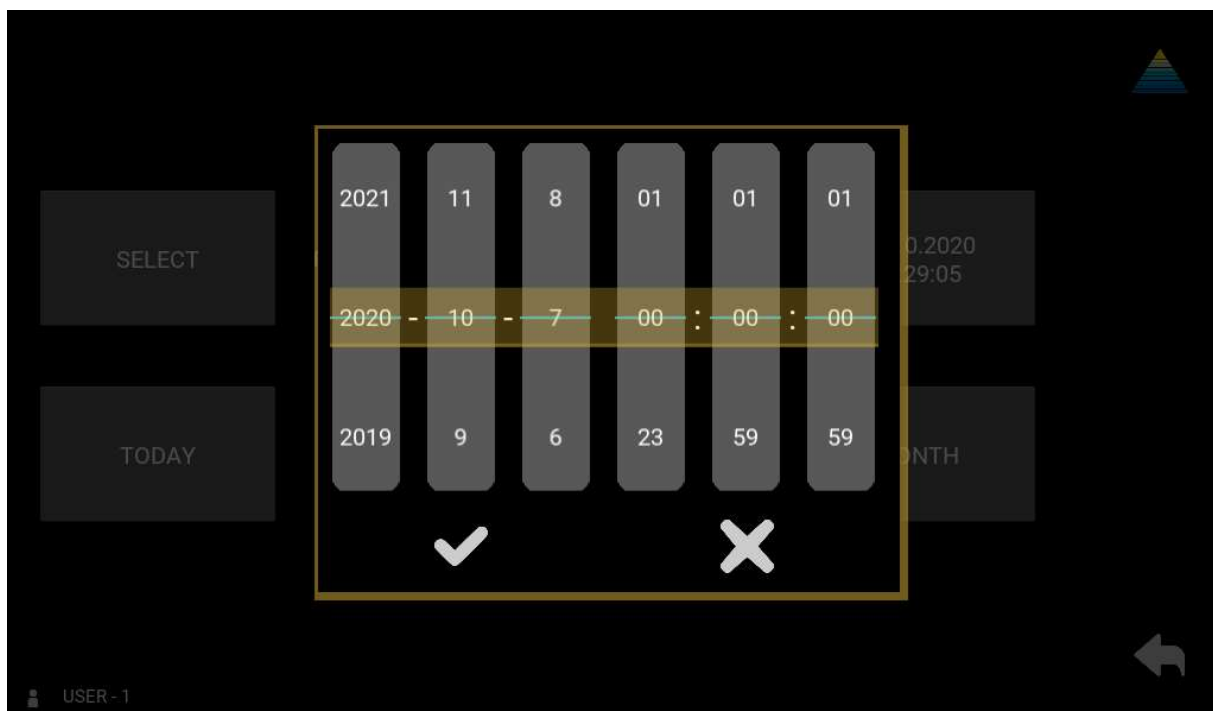
To return to the main menu press the  icon.

The operator has the option to select a specific time frame. Pressing the buttons for the “FROM” and “TO” parameters brings up a dialogue box, in which the date and time are selected and the selection

is confirmed by pressing the  icon.

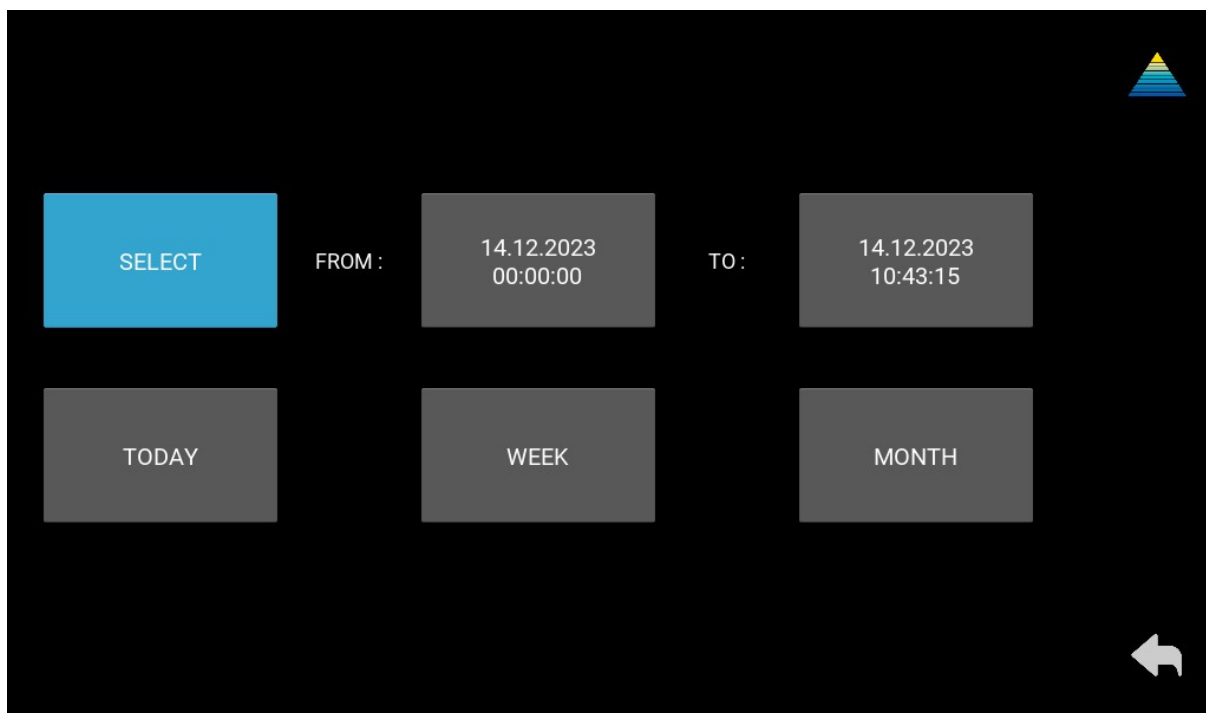


The screenshot shows the main date selection interface. At the top right is a small logo consisting of a triangle with horizontal lines. Below it, the interface is divided into two rows of buttons. The first row contains a 'SELECT' button, a 'FROM:' label, a date/time input field showing '14.12.2023 00:00:00', a 'TO:' label, and another date/time input field showing '14.12.2023 10:43:15'. The second row contains three buttons labeled 'TODAY', 'WEEK', and 'MONTH'. At the bottom right, there is a back arrow icon.



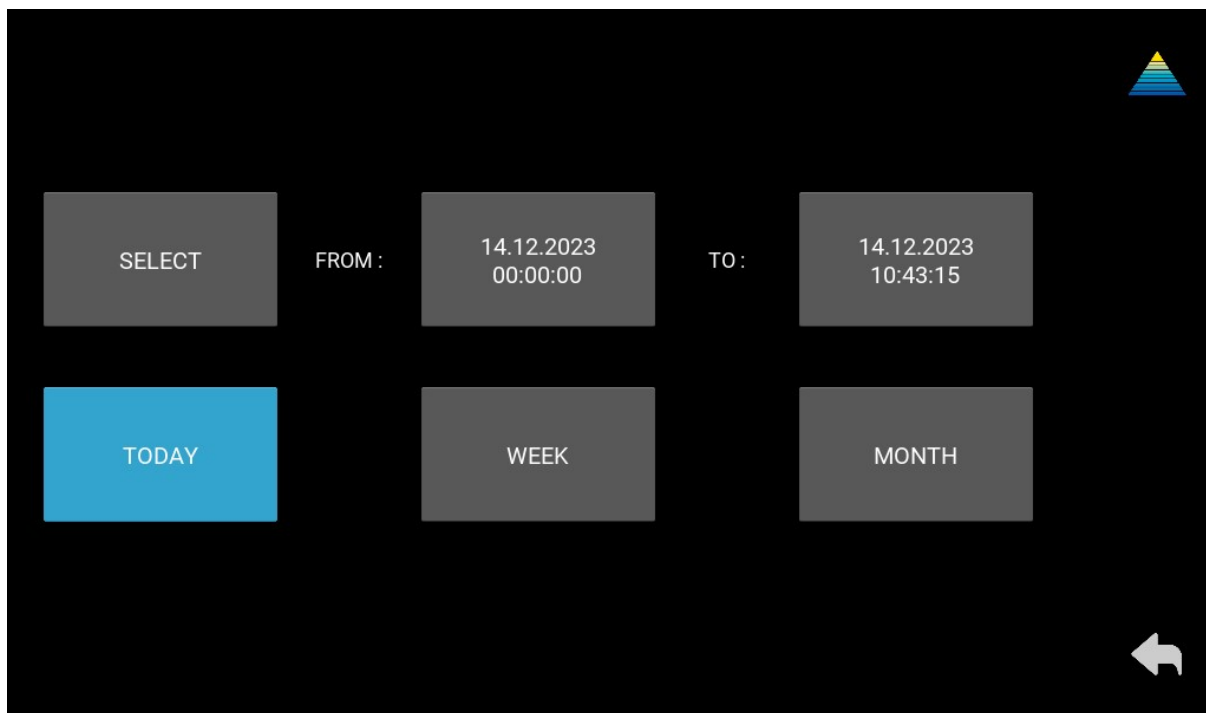
The screenshot shows the date and time picker modal. The modal is a central box with a yellow border. It contains a grid of six columns and three rows of numbers. The first row shows '2021', '11', '8', '01', '01', '01'. The second row shows '2020 - 10 - 7 - 00 : 00 : 00'. The third row shows '2019', '9', '6', '23', '59', '59'. Below the grid are two large icons: a checkmark and an 'X'. The background shows the same interface as the first screenshot, but with the date/time input fields partially obscured by the modal. At the bottom left, there is a user icon and the text 'USER - 1'. At the bottom right, there is a back arrow icon.

Pressing the “SELECT” button starts the evaluation of sorting statistics for the selected period.



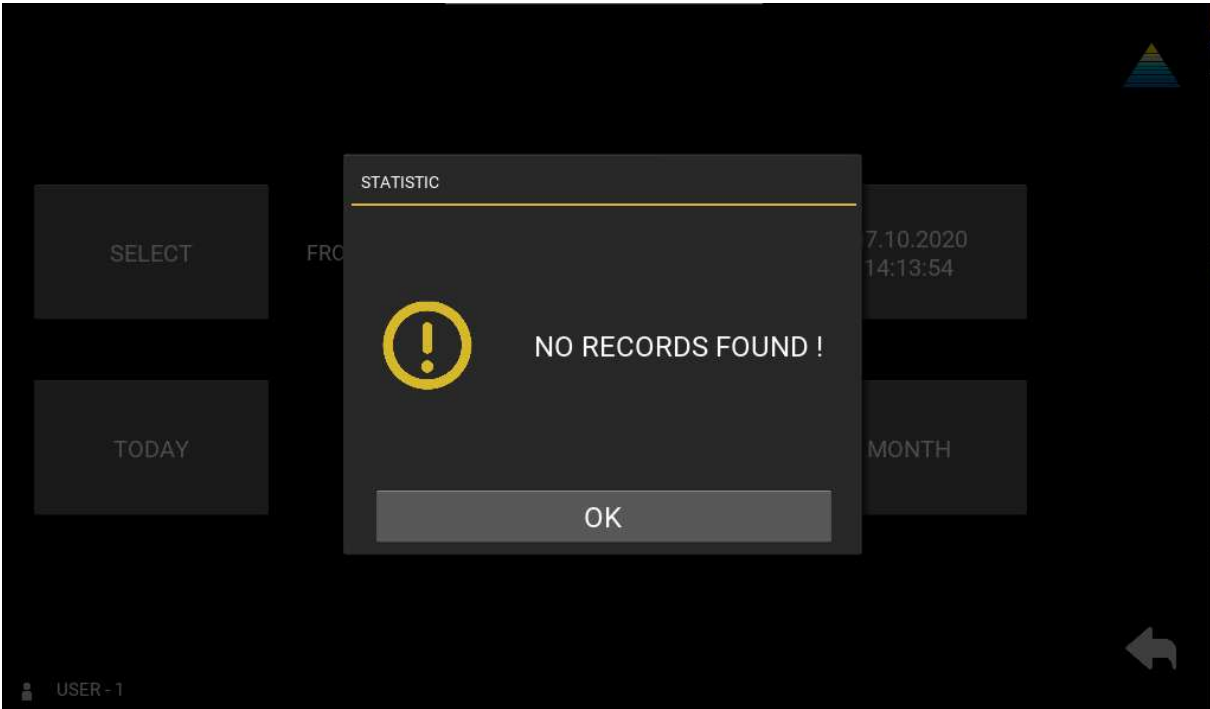
The operator can quickly select a specific period by pressing the “Today”, “Week” and “Month” buttons and start the evaluation of sorting statistics for “Today”, “Past week” and “Past month” period.

The program evaluates the sorting statistics for the selected period.



The program evaluates the sorting statistics for the selected period.

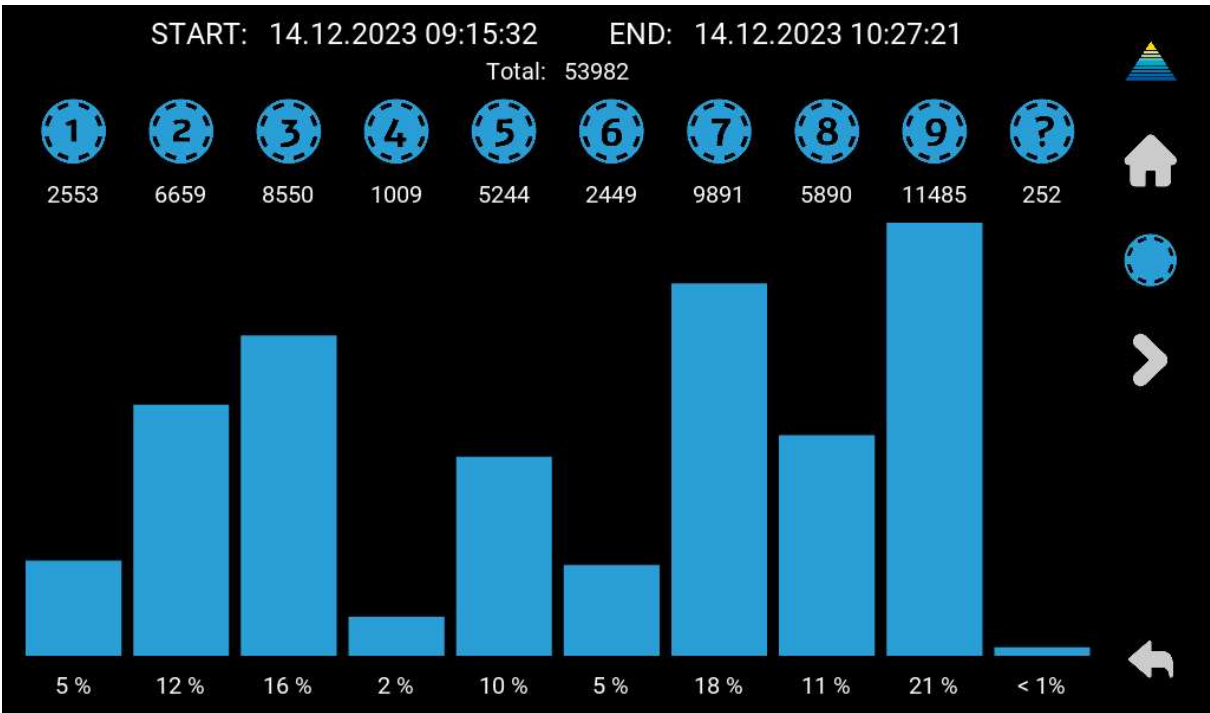
If the program finds that there were no recored sortings within a selected period, the dialogue box will be displayed:



If the program finds that sortings for more than one “learning session“ have been recorded in the selected period, it will evaluate the statistics for each “learning session“ separately.

If the program does not detect recorded sortings for multiple users in the selected period, resulting statistics will be provided. If the resulting statistic consists of several separate statistics, it is possible

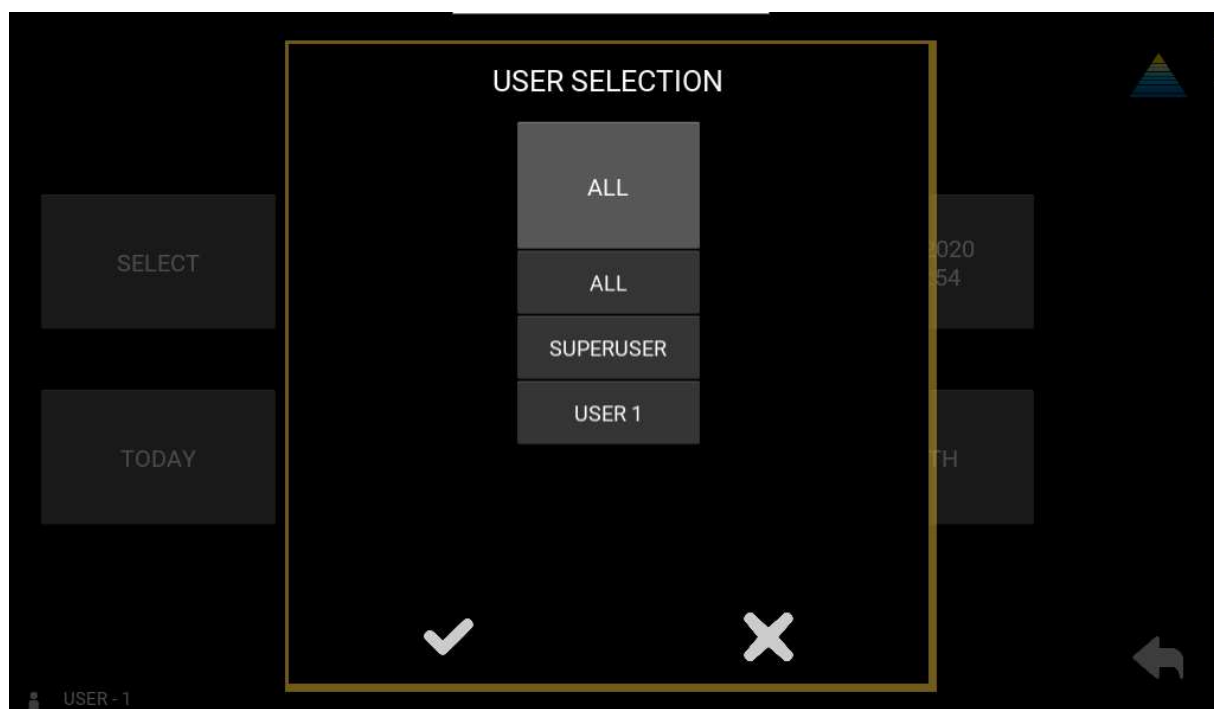
to switch in between them by pressing the   icons.





By pressing the  By pressing the icon the operator switches the program back to the screen for selecting the time period of the statistics.

If the program detects recorded sortings for several “users” within the selected period, it displays a dialogue box in which the operator can specify the “user” for whom the resulting statistics are to be evaluated.



Pressing the  icon confirms the selection and the program shows the resulting statistics

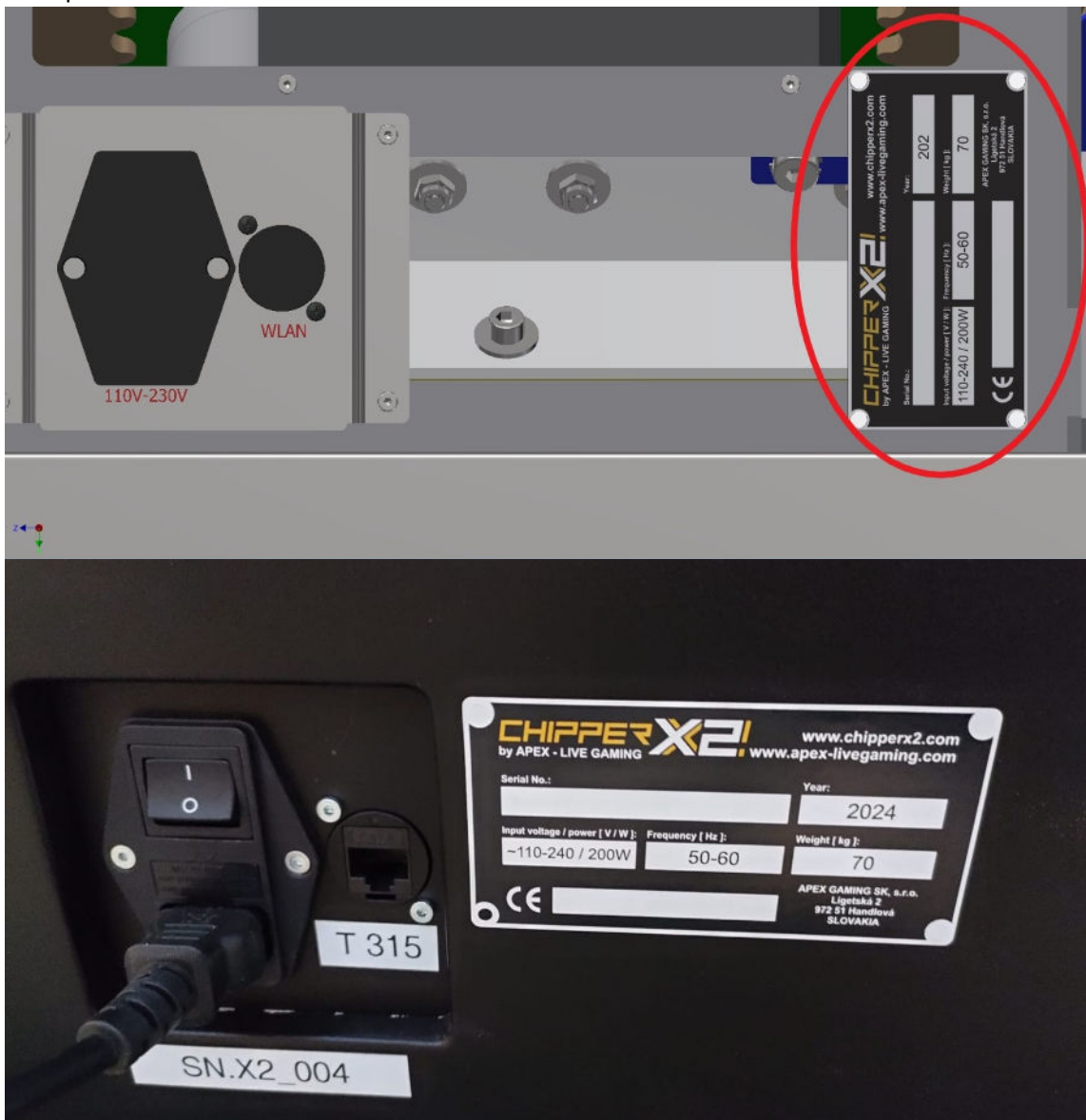
11 Online support:

For this function to work properly, it is necessary to have the device connected to the Internet via a LAN cable. The device does not support WIFI. ChipperX must be turned on, i.e. the switch is in the ON position.

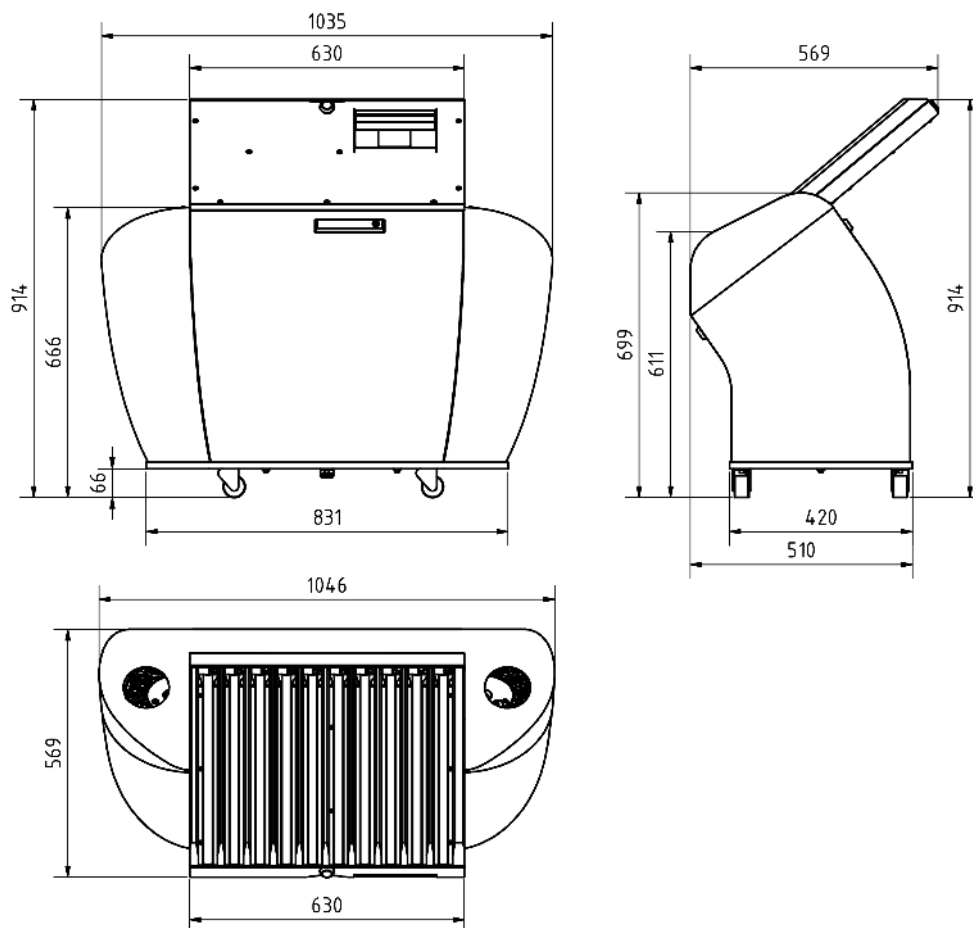
In case of online support requirement, a service technician remotely connects to the device and diagnoses the problem, resolves it in some cases, or identifies an approach for subsequent service. Online support can also help set the conditions for proper “learning”, determine the conditions of individual electronic parts, change programmed settings or diagnose device faults.

Not all defects or problems can be solved through online support. Problems of mechanical nature can only be diagnosed by a technician with the help of a video recording, a telephone call, a photo, etc. In most cases, a video call is most helpful.

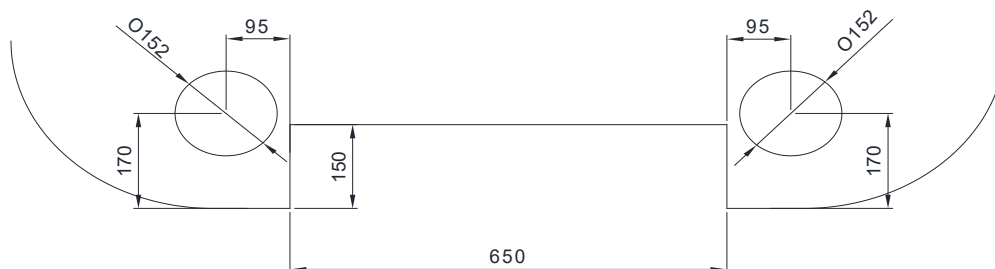
If the technician assesses that the problem cannot be solved by means of remote support, it is necessary to order the service via contact email. In the service request, state the serial number of the device, location of the device and a description of the problem. Don't forget the contact person and their phone number.



12 Dimensions:



Dimensions for cut – out of the table



List of trained persons familiar with safety and operating instructions.

Full name	Date	Signature
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