

Device cleaning for the Cubis® MCA Balance



Executive Summary

This description provides an overview of the cleaning function for the Sartorius Cubis® MCA laboratory balance. It contains explanations of the respective functions for settings and setup of the cleaning support, creation of the cleaning tasks as well as application examples.

1	Device cleaning	3
2	Device cleaning concept	3
2.1	Basic cleaning	3
2.2	Advanced cleaning	3
3	Settings for device cleaning	4
3.1	Cleaning Support	4
3.2	Cleaning criteria	5
3.3	Cleaning task	5
3.4	Notify on logout	5
4	Create a cleaning task	5
5	Status center tile	6
6	Esempi di applicazioni	6
6.1	Daily cleaning	6
6.2	Basic cleaning after usage	7
6.3	Basic cleaning and regular advanced cleaning	7

1 Device cleaning

This chapter describes the device cleaning settings of the Cubis® MCA laboratory balance. This includes:

- Cleaning concept
- Configuration of the cleaning support
- Creation of a cleaning task
- Administration of cleaning activities in the status center

2 Device cleaning concept

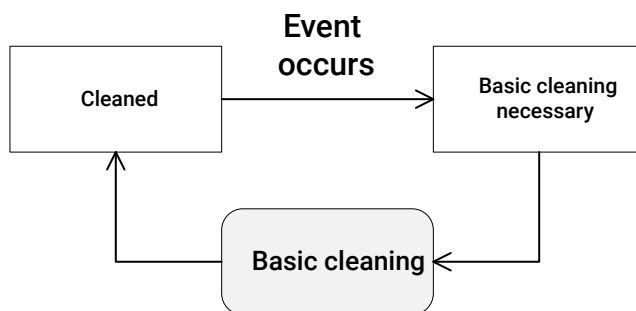
Cleaning the Cubis® is a prerequisite for high-quality measurement results. The risk of unwanted contact with foreign substances as well as cross-contamination can thus be reduced. The "Device Cleaning" software function supports you in implementing your cleaning plans as laid down in the work instructions. Your specifications can be configured in the balance, and they indicate when the balance needs to be cleaned. The cleaning QAPP of the Cubis® MCA then supports the user during cleaning by guiding him through the various steps of dismantling and setting up the balance and cleaning the components.

The device is either in the "cleaned" or "cleaning required" state. If the balance is cleaned and one of the configured events occurs, the balance automatically switches to the "cleaning required" state. For cleaning, a cleaning task must be created and executed. The cleaning task guides the user through the process step by step, depending on the type of cleaning required. At the end, a self-test is performed to check that the device has been reassembled correctly. Only then is the balance reset to the "cleaned" state.

The device supports two different stages for detecting the necessary cleaning. Furthermore, the function can be completely deactivated. The level required for the respective environment can be selected in the device settings.

2.1 Basic cleaning

The first stage involves basic cleaning without completely disassembling and cleaning the balance and its periphery. If this stage is selected (see also Cleaning settings) and at least one monitoring is set, the balance enters the 'basic cleaning required' state. In this state, at least one basic cleaning is necessary to return the balance to the cleaned state. Alternatively, advanced cleaning can also be performed.

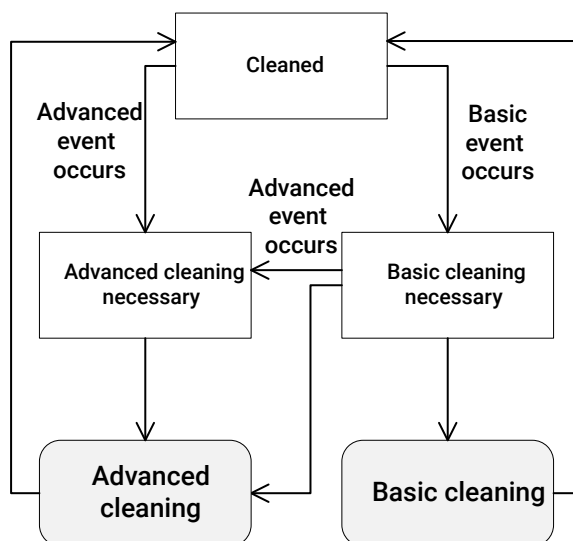


Basic cleaning states

Basic cleaning is suitable for cleaning the balance daily or in case of light contamination. The cleaning task guides the user through the steps required for this.

2.2 Advanced cleaning

The second stage involves advanced cleaning, in which the balance and its periphery are completely dismantled and cleaned as far as possible. If this stage is selected (see also Cleaning settings) and at least one monitoring is set, the balance enters the 'advanced cleaning required' state. In this state, an advanced cleaning is mandatory to return the balance to the cleaned state. Basic cleaning is not sufficient in this case.



Advanced cleaning states

The advanced cleaning is suitable for cleaning the balance regularly at longer intervals or in case of heavier contamination. In the cleaning task, the user is shown how to remove, clean and reassemble the relevant parts of the balance.

3 Settings for device cleaning

In the [Device cleaning] settings menu, the basic settings for the automatic check of the need for cleaning are made. The menu shows only the available settings depending on the parameter selection.

< Device cleaning ? ✓	
Cleaning support	Basic
Cleaning criteria (Basic)	(1)
Basic cleaning task	No task assigned
Notify on logout	Yes

Cleaning parameters in settings menu

3.1 Cleaning Support

To activate the cleaning support, select the mode that suits you in the [Cleaning support] setting:

- Off

Deactivates the cleaning support for the device. No tile is displayed in the status center. A created cleaning task can still be executed to clean the device.

- **Basic**
Single-stage monitoring of the need for cleaning. The device must be successfully cleaned by a cleaning task to return to the 'cleaned' state. A tile with the current cleaning status is displayed in the status center.
- **Basic and advanced**
Two-stage monitoring of the cleaning requirement. Depending on the monitoring, the "Basic cleaning required" or "Extended cleaning required" state is set in the device. Depending on the state, the device must be successfully cleaned by a corresponding cleaning task to return to the "cleaned" state. A tile with the current cleaning state is displayed in the status center.

3.2 Cleaning criteria

The cleaning support needs information about the desired behavior. The [Cleaning criteria] allow to configure this behavior. Currently, three different behaviors are selectable. All of these can also be combined. If one of them is triggered, the cleaning support will change into corresponding status.

- **On login**
In case this cleaning criterion is set, the balance will change its cleaning status after a user with a specific role logs in to the balance. The roles for which a change of the cleaning state is to take place are configured in the behavior. The role of the user logging in is then compared with the selection made.
This can, for example, exclude certain roles that only use the balance for configuration or for checking data (e.g. audit trail).
- **On task start**
In case this cleaning criterion is set, the balance will change its cleaning status after a defined number of task starts. It is generally recommended to perform a basic cleaning after each use. To ensure that this recommendation is followed, enable this criterion for the basic cleaning and set the number of task starts to "1".
- **Usage time**
In case this cleaning criterion is set, the balance will change its cleaning status after a defined runtime of tasks. For this purpose, this criterion is configured with the parameters Days and Hours. Every time any task is active, the runtime is measured.

3.3 Cleaning task

The [Cleaning task] parameter configures the cleaning task that is to be executed when cleaning is necessary and the user presses a [Perform cleaning] button (e.g. status center or logout). The selection shows all tasks that have a suitable cleaning application linked.

3.4 Notify on logout

In case this parameter is set to "yes", the user will be notified on logout if a cleaning is currently required. The user then has the option of cleaning the device with the configured task, canceling the logout process or continuing the logout without cleaning. The message will not be shown in case of auto logout.

4 Create a cleaning task

The QAPP 'Device Cleaning' is delivered in the Essential package with the associated QAPP Center from version 8. It is licensed automatically.



QAPP logo

The application offers a guided process to clean the balance. The application offers two different modes for regular

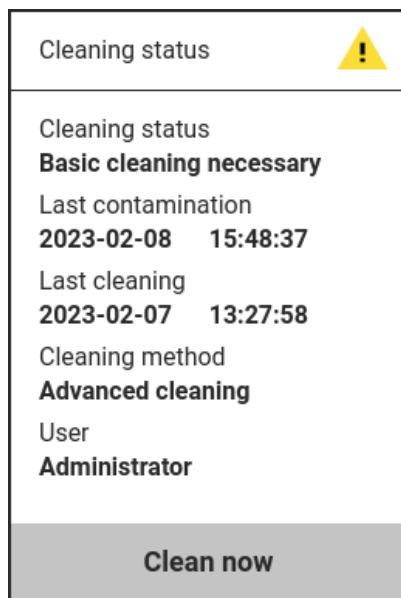
basic cleaning or for thorough advanced cleaning. The cleaning mode and the deciding criterion to define when a balance has to be cleaned are defined in the balance settings menu by users with appropriate role rights. The operator gets an overview on the cleaning status in the balance status center and a visual notification in the main menu if the balance has to be cleaned. The cleaning task guides the user by clear instructions and graphical animations through the complete cleaning process. The application gives clear guidance to user how to disassemble and assemble the weighing compartment components. If activated, the user at the end of the procedure must confirm the balance cleanliness by electronic signature.

To create a Task, proceed as follows:

1. Open the [Task management] menu.
2. Press the [+] in menu.
3. Search and select [Cleaning] in the displayed application list
4. Follow the configuration workflow in the task creation

5 Status center tile

When cleaning support is enabled, a tile in the status center shows the current cleaning status. Furthermore, the last time of soiling and cleaning can be viewed there.



Cleaning tile in status center

If the device is not cleaned, the number of issues is incremented by one and is already displayed as a yellow indicator in the main menu. In the status center, the cleaning tile is automatically reordered so that the user can immediately see the reasons for which an issue is reported.

If the device is not cleaned, the user can start the requested cleaning directly from the tile. The [Perform cleaning] button is used for this purpose. The condition for this is that the corresponding tasks are created in the task management and linked in the 'Device cleaning' menu.

6 Esempi di applicazioni

The following examples show exemplary setup for different applications.

6.1 Daily cleaning

The daily cleaning can be set up without the support of the device cleaning. The scheduled actions are available for this purpose. To set up, follow these steps:

1. Create a cleaning task as described in chapter 4

2. Navigate to [Device settings] -> [Timer controlled actions]
3. Add a new timer controlled action "Start task"
4. Set the first execution date and time, e.g. 2023/03/01, 8:00
5. Set the repetition date to 1
6. Select the newly created cleaning task as task to be started.
7. Save the timed action under a name that is easy to understand.

Even if the repetition rate is one day, the task will not be started if the device is not operated once a day or if another task is already active. Therefore, the settings should be selected according to the usage times. In this example, the tile is not displayed in the status center. When logging out, no message can be displayed either. An entry is created in the audit trail after cleaning.

6.2 Basic cleaning after usage

Basic cleaning after a use is useful when the balance is used by different users with substances that make cleaning essential. In this example, the notification to the user is activated so that the user is reminded of the cleaning after logging off.

1. Create a cleaning task as described in chapter 4
2. Navigate to [Device settings] -> [Device cleaning]
3. Activate [Cleaning support] to Basic, the appropriate settings get visible
4. Click [Cleaning criteria] and press the [+] to add the criterion [On login]
5. Select [Roles] and select the user roles which relates to operation, save the configuration
6. Select [Task for basic cleaning] and select the previously created cleaning task
7. Select [Notify on logout] and select Yes

The settings cause the cleaning tile to be displayed in the Status Center. In the event that cleaning becomes necessary, the number of incidents at the Status Center button will increment. Each time a user logs in to the device with one of the selected roles, the status that the device needs cleaning will occur. The user can now start cleaning directly from the tile in the Status Center. Because the [Notify on logout] setting has also been set to Yes, the user will be notified that the balance has not been cleaned when they log out.

6.3 Basic cleaning and regular advanced cleaning

If work is done on the balance regularly without permanently changing users, the number of task starts can be assumed as a necessary cleaning criterion for basic cleaning. If additional advanced cleaning is to be performed, this can also be done using the number of hours of use. This example configures the number of task starts and hours of use as criteria for this.

1. Create two cleaning tasks as described in chapter 4, one for basic cleaning, one for advanced cleaning
2. Navigate to [Device settings] -> [Device cleaning]
3. Activate [Cleaning support] to Basic and advanced, the appropriate settings get visible
4. Click [Cleaning criteria (Basic)] and press the [+] to add the criterion [On task start]
5. Set a meaningful amount of task start, e.g. 10
6. Click [Cleaning criteria (Advanced)] and press the [+] to add the criterion [Usage time]
7. Set the time to 10 hours
8. Select [Task for basic cleaning] and select the previously created basic cleaning task
9. Select [Task for advanced cleaning] and select the previously created advanced cleaning task
10. Select [Notify on logout] and select Yes

The settings cause the cleaning tile to be displayed in the Status Center. In the event that cleaning becomes necessary, the number of incidents at the Status Center button will increment. The cleaning support now counts the number of task executions even across a reboot of the device. When the number of configured executions is reached, the status is set to "basic cleaning needed". If the configured duration of use is reached, the device switches to the next status "advanced cleaning necessary". This state can also be reached without having previously been in the "basic cleaning necessary" state. The user can now start the corresponding necessary cleaning directly via the tile in the status center. The cleaning support automatically selects the correct task by the assignment. Because the setting [Notify on logout] has also been set to Yes, the user is notified when logging out that the balance has not been cleaned.