# DataApex
# Clarity™

CHROMATOGRAPHY SOFTWARE

# SARTORIUS BALANCE

Clarity Control Module          ENG

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# Contents

To facilitate the orientation in the **Sartorius Balance** manual and **Clarity** chromatography station, different fonts are used throughout the manual. Meanings of these fonts are:

*Open File* (italics) describes the commands and names of fields in **Clarity**, parameters that can be entered into them or a window or dialog name.

WORK1 (capitals) indicates the name of the file and/or directory.

*ACTIVE* (capital italics) marks the state of the station or its part.

[Chromatogram](#) (blue underlined) marks clickable links referring to related chapters.

The bold text is sometimes also used for important parts of the text and the name of the **Clarity** station. Moreover, some sections are written in format other than normal text. These sections are formatted as follows:

*Note:*          Notifies the reader of relevant information.

*Caution:*     Warns the user of possibly dangerous or very important information.

▌ **Marks the problem statement or trouble question.**

*Description:*   Presents more detailed information on the problem, describes its causes, etc.

*Solution:*      Marks the response to the question, presents a procedure how to remove it.

# 1 Sartorius Balance Control Module

This manual describes the setting of the **Sartorius M2P**, **CP**, **GC**, **GP** and **Cubis** series balance. The control module enables direct control of the instrument over serial or USB line.



*Fig. 1: Sartorius M2P balance*

Direct control means that the balance can be completely controlled from the **Clarity** environment. The weight of samples can be obtained from **Clarity** and automatically transferred into the sequence table.

# 2 Requirements

- **Clarity** Installation with EA Extension (p/n A30).
- Free serial COM port in the PC for the **M2P**, **CP**, **GC**, **GP** series balances, free USB port for the **Cubis** series balances.

*Note:*      Modern computers usually have only 1 (if any) serial (COM) port installed. To use more devices requiring the RS232 port, the **MultiCOM** adapter (p/n MC01) is available.

- Serial cross DB9F-DB25M cable (p/n SK03) for the **M2P**, **CP**, **GC**, **GP** series balances, USB cable (p/n SK06) for the **Cubis** series balances.

*Note:*      Cables are not part of **Clarity** Control Module. It is strongly recommended to order required cables together with the Control Module.

# 3 Installation Procedure

## 3.1 Sartorius balance communication

### M2P, CP, GC and GP series balances

The **M2P**, **CP**, **GC** and **GP** series balances are controlled by serial (RS232) communication. They use standard serial cross DB9F-DB25M cable (p/n SK03). The communication parameters on the balance and in **Clarity** are variable, **Clarity** uses these values as default:

Baud Rate *1200*, Parity *N*, Data Bits *7*, Stop Bits *2*.

Furthermore, it is necessary to set some menu code settings on the balance, according to their type. These settings are:

- For the **M2P** balance, the menu code *C212* (Output upon print command at stability) has to be set.
- For the **CP**, **GC** and **GP** balance, menu codes:

  *211* (Weighing)

  *551* (SBI(ASCII))

  *612* (Manual at stability)

  *721* (For raw data (16 characters))

has to be set. The process of setting these parameters is described in the **Sartorius Balance** hardware manual.

### Cubis series balances

The **Cubis** series balances are controlled over USB communication. Even if the balances are connected to the PC with the USB cable, there is a in-built FTDI USB-COM converter and the communication port appears as a COM Port in **Clarity**. The communication parameters set in the balances and in **Clarity** must be the same, recommended values for the **Cubis** series are:

Baud rate *19200*, parity *N*, bits *8*, stop bit *1*, handshake *None*.

The process of setting these parameters is described in the **Sartorius Balance** hardware manual.
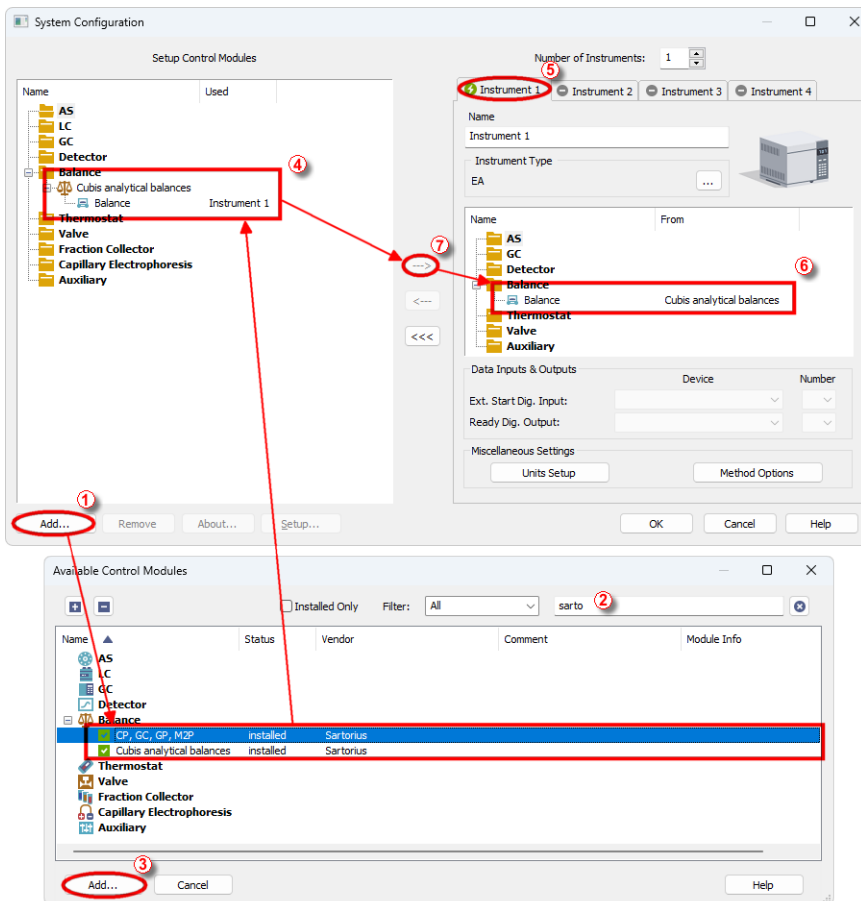
## 3.2 Clarity Configuration



*Fig. 2: How to add Sartorius balances*

- Start the **Clarity** station by clicking on the ⬛ icon on the desktop.
- Invoke the *System Configuration* dialog accessible from the *Clarity* window using the *System - Configuration...* command.
- Press the *Add* button ① (see **Fig. 2** on pg. **4**.) to invoke the *Available Control Modules* dialog.
- You can specify the searching filter ② to simplify the finding of the driver.
- Select the **Sartorius** balances and press the *Add* ③ button.
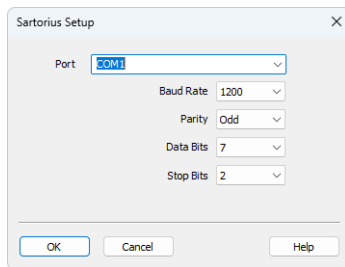
The Sartrorius Setup dialog will appear.



*Fig. 3: Sartorius Setup*

- Select the correct communication *Port* and fill in the appropriate *Baud Rate*, *Parity*, *Data Bits* and *Stop Bits* to match the values set on the balances itselves.

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*Note:*       The Sartorius Setup dialog is more closely described in the chapter **"Sartorius Setup"** on pg. **8**.

The **Sartorius** balance item will appear in the *Setup Control Modules* list of the *System Configuration* dialog.

- Drag and drop the balance icon from the *Setup Control Modules* ④ list on the left side of the *System Configuration* dialog to the desired *Instrument* ⑤ tab on the right side ⑥ (or use the ⟶ button ⑦ to do so).

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*Note:*       The *Instrument Type* must be set to *EA* in order to be able to configure the **Sartorius Balance** on the **Clarity** Instrument.

# 4 Using the control module

The display of the *Instrument* window changes after the **Clarity** Instrument is switched into the **EA** mode in the *System Configuration* dialog. These changes are described in detail in the EA Extension manual.

The **Sartorius Balance** control module doesn't add any windows or tabs to the EA Instrument window, but allows for the direct insertion of the sample weights into the EA-modified **Sequence Table**.

## 4.1 Standard operation procedure

- In the *Sequence* window, mark the *Sample Amount* field on the line where you want to transfer the value or the entire line. You can mark more fields/lines at the same time - values will be transferred sequentially after each use of the *Get Weight* button.
- Open the Get Weight dialog using the *Sequence - Balance...* command or the ⚖ icon ① .
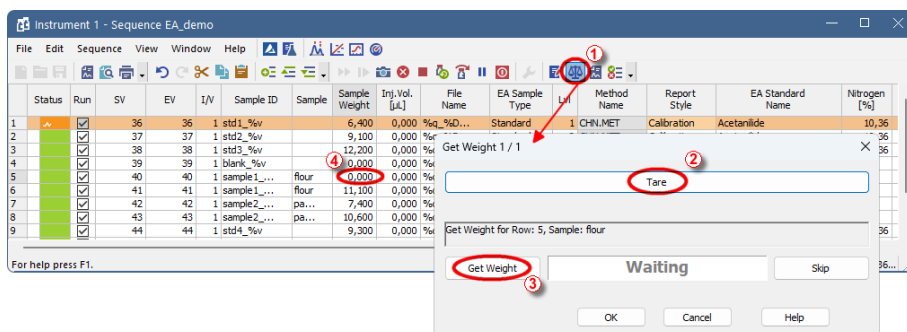


*Fig. 4: Standard operation procedure*

- If necessary, use the *Tare* button ②  to subtract the weight of an empty container.
- Place the container with sample on the balance.
- Use the *Get Weight* button ③  to transfer the weight from the analytical balance directly into the *Sample Amount* ④  field of the **Sequence Table**.

*Note:*          Function can be used only for lines where analysis did not take place so far.

## 4.2 Get Weight

The *Get Weight* dialog is used for acquiring the weight and its automatic transfer into the *Sample Amount* fields of the **Sequence Table**. The numbers behind the "Get Weight" inscription in the name of the dialog show the number of the sample to be weighted and the total number of samples selected for weighting. The *Get Weight* dialog is opened by *Sequence - Balance...* command from the **Sequence** window.

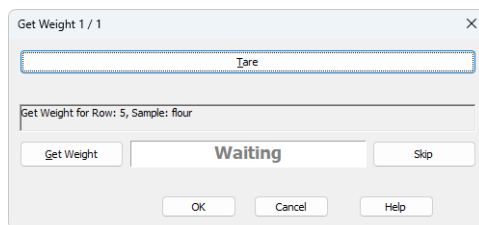*Note:*     You can also open the *Get Weight* dialog using the ⚖ icon from the **Sequence** window.

*Fig. 5: Get Weight*

**Tare**
Subtracts the weight of an empty container.

**Information Panel**
Displays messages from the **Sequence Table** indicating current sample.

**Get Weight**
Transfers the weight from the analytical balance directly into the *Sample Amount* field of the **Sequence Table**.

**Status Panel**
Displays current status of the analytical balance. Refer to the **Sartorius Balance** balance documentation for description of the individual states.

**Skip**
Skips the weighting of the current sample.

# 4.3 Sartorius Setup

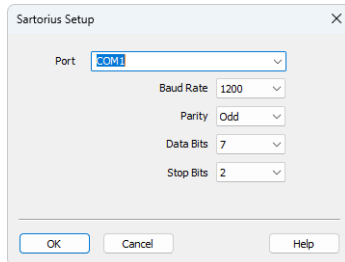The *Sartorius Setup* dialog sets the communication settings of the control module.



*Fig. 6: Sartorius Setup*

**Port**

Sets the COM Port used for communication between the balance and the PC. Even the USB communication port for the **Cubis** series balances appear as COM port.

**Baud Rate**

Sets the speed of data used for the communication between the balance and the PC.

**Parity**

Sets the parity of the data used for communication between the balance and the PC.

**Data Bits**

Sets the number of data bits used for the communication between the balance and the PC.

**Stop Bits**

Sets the number of stop bits used for the communication between the balance and the PC.

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*Note:*        For successful communication, all of these settings must correspond to the settings of the balance. Recommended values are described the chapter **"Installation Procedure"** on pg. **3**.

# 5 Troubleshooting

When the remedy for some problem cannot be discovered easily, the recording of communication between **Clarity** and the balance can significantly help the **DataApex** support to discover the cause of the problem.

The recording can be enabled by adding or amending the COMMDRV.INI file in the **Clarity** installation directory (C:\CLARITY\CFG by default). The file can be edited in any text editor (e.g. Notepad). Following section should be edited or added:

```
[COM1]
echo=on
textmode=on
filename=Sartorius_%D.txt
reset=off
```

*Note:*     Instead of COM1 type the correct serial port used to communicate with the **Sartorius Balance**. This port number is displayed in the Sartorius Setup dialog.

*Note:*     *%D* (or *%d*) in the filename parameter means that the log will be created separately for each day. The *reset=off* parameter disables deleting the content of the log each time the station is started during the same day.

The created *.TXT files will greatly help in diagnosis of unrecognized errors and problems in communication.