Miltenyi Biotec



MACSQuant® Instrument short instructions

Hardware calibration

Before using the instrument for the first time, read the MACSQuant Instrument user manual and MACSQuantify™ Software user manual.

These short instructions are valid for the MACSQuantify Software 3.1 and later. They guide you through the process of hardware calibration. Calibration of the needle arm to the dropping station, tube racks, reagent racks, and plates, requires the MQ Administrator role.

⚠ CAUTION

Moving robotic needle arm. Risk of crushing or cutting.

- Do not obstruct the movement of the robotic needle arm.
- Keep away from the robotic needle arm while the instrument is in operation.

⚠ VORSICHT

Beweglicher Roboter-Nadelarm. Gefahr von Schnittverletzungen oder Quetschungen.

- Behindern Sie nicht die Bewegung des Roboter-Nadelarms.
- Halten Sie während des Betriebs Abstand zum Roboter-Nadelarm.

⚠ ATENCIÓN

Brazo de aguja robótico en movimiento. Riesgo de aplastamiento o corte.

- No obstruya el movimiento del brazo de aguja robótico.
- Manténgase alejado del brazo de aguja robótico mientras el instrumento está en funcionamiento.

⚠ ATTENTION

Bras robotique à aiguille en mouvement. Risque d'écrasement ou de coupure.

- Ne bloquez pas le mouvement du porte aiguille robotisé.
- Tenez-vous éloigné du porte aiguille robotisé lorsque l'instrument est en marche.

⚠ ATTENZIONE

Braccio robotico dell'ago in movimento. Rischio di schiacciamento o taglio.

- Non ostacolare il movimento del braccio-ago robotico.
- Mantenersi a distanza dal braccio-ago robotico mentre lo strumento è in funzione.

Calibrating the robotic needle arm

A correct calibration of the needle arm is important for the right sample mixing, sample uptake, and sample injection. A red circle indicates that the component is not calibrated, a green circle indicates that the component is calibrated.

MACSQuant Analyzer 10, VYB, Analyzer 16

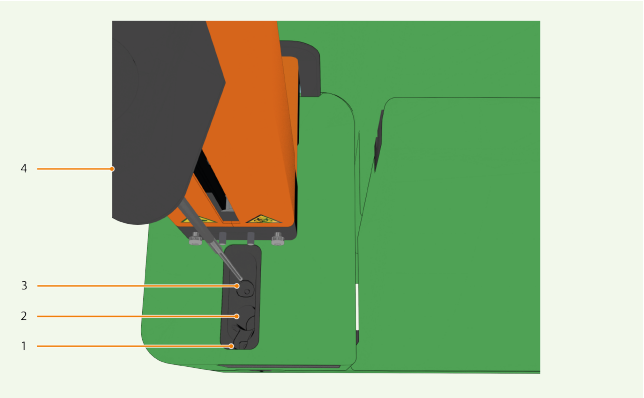


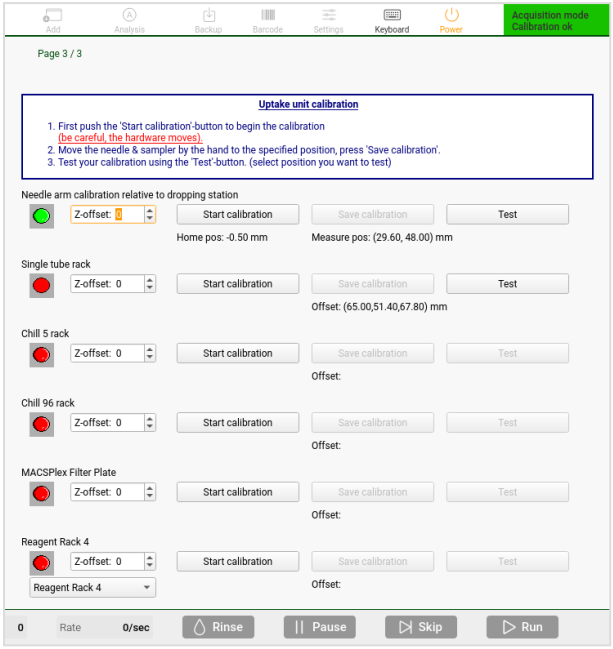
Figure 1: Top view of the washing station with sample injection port (1), waste port (2), washing port (3), and robotic needle arm (4)

1. Click **Tools** tab.
2. Select the **Calibrate uptake unit** box.
3. Click **Start calibration** in the section **Needle arm calibration relative to dropping station**. The robotic needle arm moves towards the washing station before being inserted into the sample injection port.
4. Manually adjust the robotic needle arm to place the uptake needle over the center of the sample injection port.
5. Gently lower the robotic needle arm manually into the sample injection port until it makes first contact with the bottom. The uptake needle must not pop out of the needle holder and always remain perpendicular to the horizontal plane. Do not bend the needle or insert it diagonally.
6. In the field **Z-offset**, enter 30.

7 Click **Save calibration**.

The green circle indicates that the calibration is completed.

8 Click **Test** to confirm a successful calibration.



MACSQuant X

1 Click **Tools** tab.

2 Select the **Calibrate uptake unit** box.

3 Click **Start calibration** in the section **Needle arm calibration relative to dropping station**. The robotic needle arm moves towards the dropping station before being inserted into the port.

4 Manually adjust the robotic needle arm to place the uptake needle over the center of the port.

5 Gently lower the robotic needle arm manually into the port until the uptake needle touches the bottom of the port. Do not bend the needle or insert it diagonally.

6 Click **Save calibration**.

The closed green circle indicates that the calibration is completed.

7 Click **Test** to confirm a successful calibration.

Calibrating the robotic needle arm to racks and plates

The MACSQuant Instrument can be used with different rack and plate types. Connect the appropriate rack and plate before starting the calibration. To adjust the calibration, move the needle arm up and down (Z), forward and backward (Y), or move the MiniSampler or Orbital Shaker left and right (X).

1 Click **Tools** tab.

2 Select the **Calibrate uptake unit** box.

Switch between the pages of the calibration menu to see all rack and plate types for calibration.

3 Select **Start calibration** in the section of the rack or plate to be calibrated.

The robotic needle arm automatically moves forward.

4 Adjust the needle arm to the center of the position in the front-most right corner, for example, D6 for the Chill 5 Rack.

5 Lower the robotic needle arm depending on the MACSQuant Instrument type:

- **MACSQuant Analyzer 10, VYB, and Analyzer 16**: Lower the robotic needle arm carefully until it almost touches the bottom. Gently wiggle the tube or plate to ensure that there is a small amount of movement.
- **MACSQuant X**: Lower the robotic needle arm until it touches the bottom.

6 Click **Save calibration**.

The closed green circle indicates that the calibration is completed.

7 Optional: Select test position(s) in the rack window in the side pane.

8 Optional: Click **Test** to confirm a successful calibration.

Calibrating the robotic needle arm to reagent rack

1 The MACSQuant Instrument can be used in combination with both, the Universal Reagent Rack and the Reagent Rack 4.

2 Click **Tools** tab.

3 Select the **Calibrate uptake unit** box.

4 Install a reagent rack.

5 Place an empty reagent vial on position furthest away from instrument.

6 Remove the cap from the reagent vial if attached.

7 Click **Start calibration** in the section **Reagent Rack 4**.

8 Select a reagent rack from the dropdown list.

A dialog box prompts you to ensure that the reagent rack is installed and that the Single tube rack is removed.

9 Confirm the dialog box by clicking **OK**.

The robotic needle arm automatically moves forward.

10 Adjust the uptake needle to the deepest point of the vial.

11 Click **Save calibration**.

12 Click **Test** to confirm a successful calibration.

MACSQuant X tube length and volume calibration

For an accurate cell count of the MACSQuant X, it is recommended to repeat the tube length calibration once a week and the volume calibration once a month. For details, refer to the **MACSQuant X user manual**.

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