

Picus[®] & Picus[®] NxT Electronic Pipette



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1. Introduction

The Sartorius Picus®|Picus® Nxt electronic pipette brings ergonomics to a completely new level with its exceptionally lightweight and compact design, and its ease of operation. This versatile air displacement pipette has been designed by an experienced R&D team in cooperation with laboratory personnel and ergonomists to ensure safe and comfortable pipetting.

The Picus®|Picus® Nxt is available in single and multichannel models (1 and 8-channel). Tips can be attached and ejected safely and comfortably using the Optiload tip-loading feature and the electronic tip ejection function. To improve safety by reducing the risk of contamination, replaceable Safe-Cone Filters can be used in all Picus®|Picus® Nxt models greater than 10 µl.

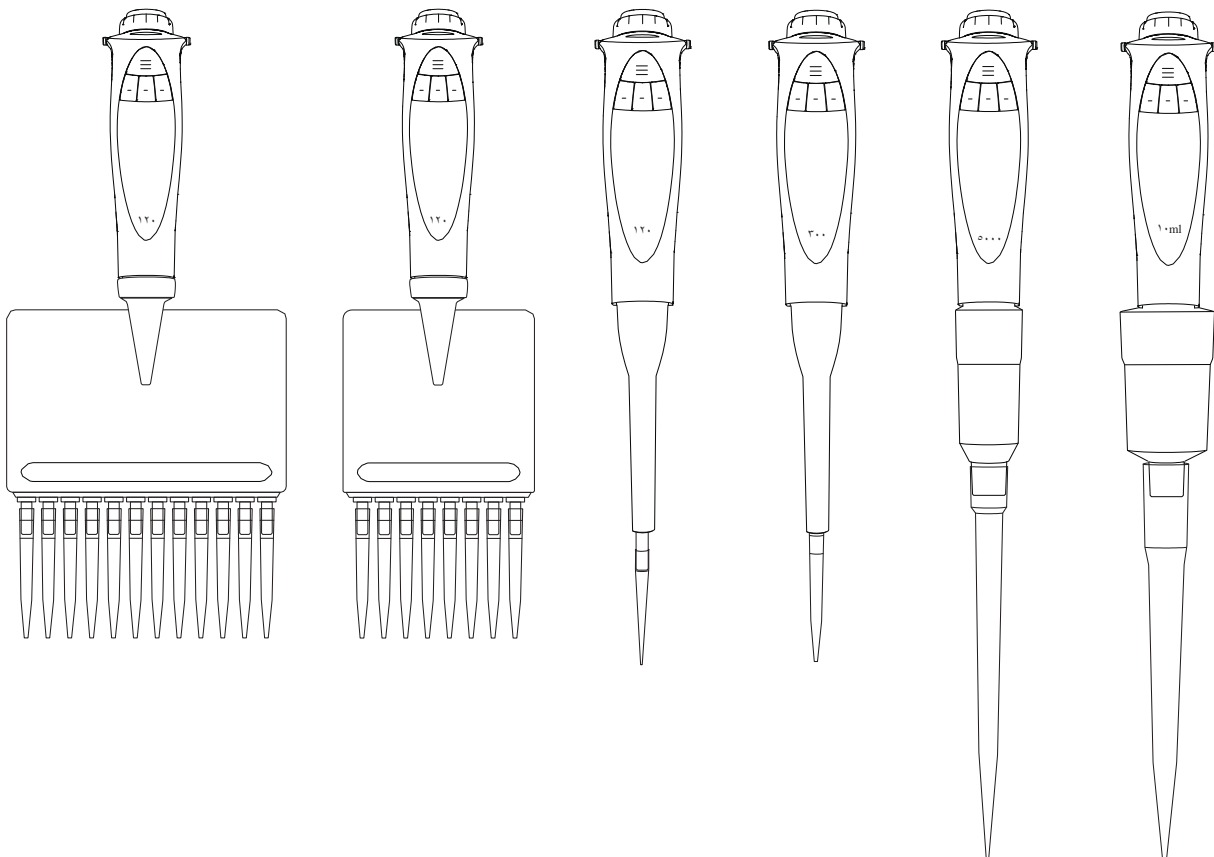
The fully electronic operation, unique DC motor, and the electronic brake and piston control system guarantee excellent accuracy and precision. The desired volume can be quickly selected using the light and easy-to-use adjustment wheel on top of the pipette.

Picus® Nxt offers advanced safety and efficiency features for highly regulated laboratories. These features include a certificate of accredited 3-point calibration, user-definable pipetting protocols, and calibration and service reminders.

Congratulations on becoming a new Picus®|Picus® Nxt owner!



reddot design award
winner 2012



1.1. Intended Use

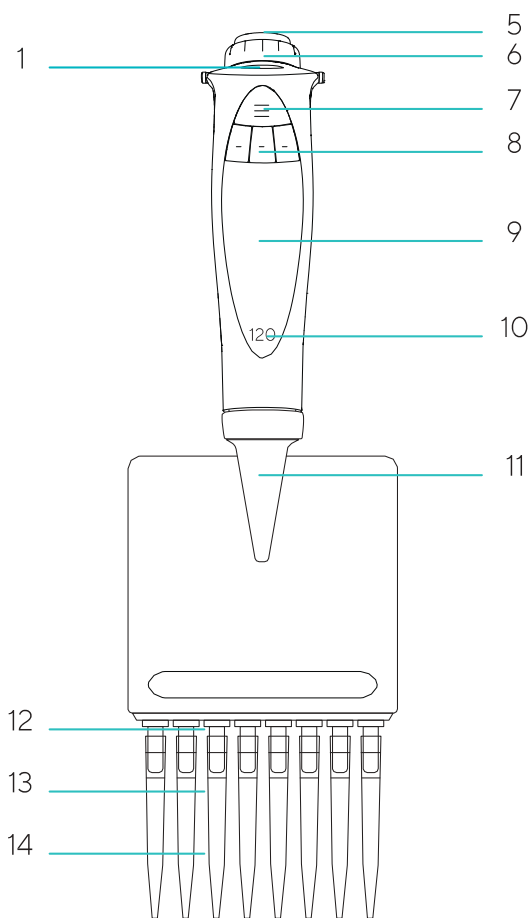
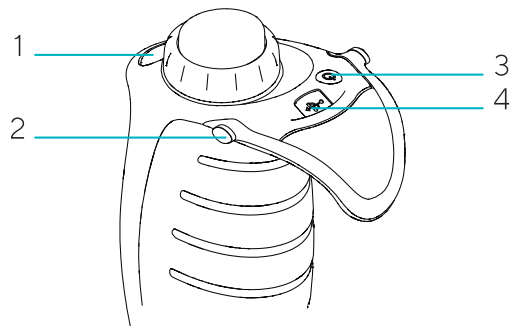
The Picus®|Picus® Nxt pipette is intended, designed and manufactured for dispensing liquids in a variety of applications, and to be used in combination with Sartorius Optifit Tips or Safetyspace® Filter Tips.

The Picus®|Picus® Nxt product range covers a volume range of 0,5 µl to 10000 µl. It is recommended that Sartorius Optifit Tips or Safetyspace® Filter Tips are used with Sartorius pipettes to ensure optimum compatibility and performance.

The Sartorius Picus®|Picus® Nxt pipette is a general purpose laboratory device that is developed and manufactured according to ISO 9001 and ISO 13485 standards.

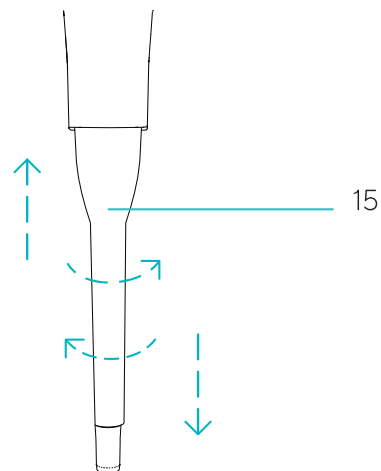
Read this user manual carefully before using the pipette for the first time. Additional copies can be downloaded from www.sartorius.com or by email from lhinfo.finland@sartorius.com.

Note: Prolonged pipetting can cause Work Related Upper Limb Disorder (WRULD). The manufacturer is not responsible for WRULD or any related injuries caused by using pipettes.



1.2. Product Overview

1. Electronic tip ejector
2. Charging contacts
3. On/off button
4. USB-charging port
5. Operating button & volume range colour-code
6. Adjustment wheel
7. Hotkey for memory places (black in Picus® Nxt)
8. Softkeys for programming (black in Picus® Nxt)
9. Dot-matrix display
10. Maximum volume
11. Dispensing head (tip ejector collar and tip-cone), autoclavable (excl. 5/12-ch 1000 µl)
12. Optiload, spring-loaded tip-cones in multichannel pipettes
13. Safe-Cone Filters (excl. <10 µl pipettes)
14. Pipette tip
15. Tip ejector collar. (When using non-Sartorius tips, it can be adjusted for suitable tip ejection, in 10 µl, 120 µl, 300 µl and 1000 µl single-channel models)



1.2.1. Display

The multi-colour backlit dot-matrix display is clear and is logically structured.

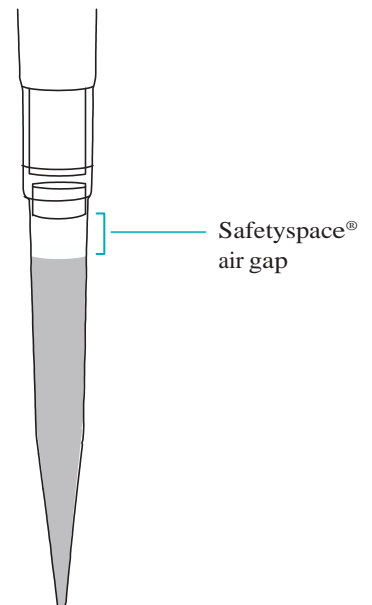
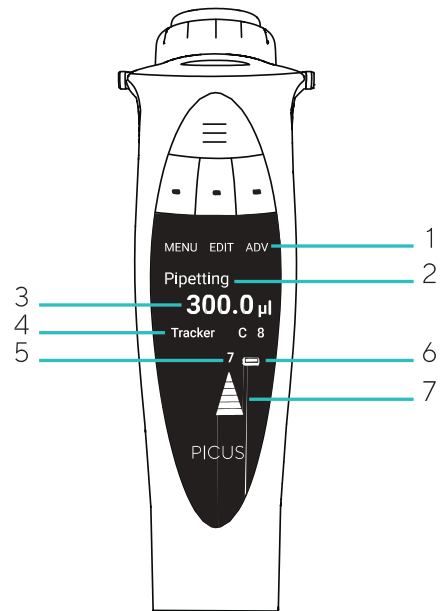
1. Softkey functions
2. Current mode
3. Pipetting volume and aliquots in multi-dispensing mode
4. Advanced Function (ADV), if selected
5. Speed
6. Battery indicator
7. Arrow indicating pipetting direction

1.2.2. Optifit Tips and Safetyspace® Filter Tips

We recommend using Sartorius Optifit Tips or Safetyspace® Filter Tips. These tips are designed for Sartorius pipettes and therefore ensure optimal compatibility, accuracy, and precision.

For optimum results you should also:

- f Ensure that the liquid and the pipette|tip combination are at approximately the same temperature
- f Choose the right tip volume for your pipette: the colour of the tip tray should match the colour code on the pipette
- f Use Optifit Tips in rack, refill, or bulk packaging, and choose the purity level your application requires: free of DNase, RNase, human DNA and endotoxin, and/or sterilized
- f If aerosol contamination needs to be avoided, choose Safe-Cone Filters, which are attached to the tip-cone and should be changed daily, or Safetyspace® Filter Tips, which are discarded after each pipetting
- f Safetyspace® Filter Tips should also be chosen when you want to avoid sample loss due to the sample reaching the filter. The extra space between the sample and the filter ensures that even foaming or viscous liquids don't reach the filter in reverse pipetting or repetitive|multiple dispensing modes
- f Pre-rinse the tip three to five times before pipetting (this is especially important in the forward pipetting mode)
- f Wipe the tip against the receiving vessel's wall to catch the last droplet after dispensing
- f Change the tip after every pipetting



1.3. Contents of Delivery Package

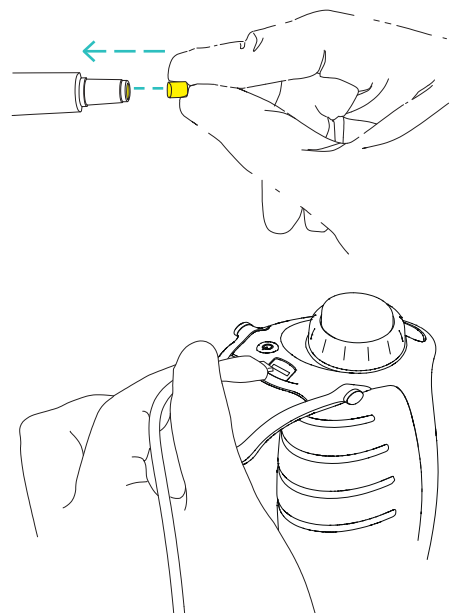
- f Picus®|Picus® Nxt electronic pipette
- f Universal USB charger (EU, UK, US, JPN, KOR, AUS, and CHN plugs)
- f Sartorius tip rack (1 × 36 tips) of corresponding volume with up to 1000 µl single-channel models / 1200 µl multichannel models
- f One tip with 2000 µl and 10000 µl single-channel models
- f Safe-Cone Filters and tweezers with >10 µl models
- f Autoclavable grease with the single-channel models
- f QC-certificate (Picus®), certificate of accredited 3-point calibration (Picus® Nxt)
- f Quick Start Guide

If any item in this delivery package is missing or damaged, please contact your local Sartorius representative.

2. Getting Started

Please read this manual before using your Picus®|Picus® Nxt electronic pipette.

1. Picus®|Picus® Nxt pipettes are delivered ready for use, with the battery partially charged. However, for the best results we recommend fully charging the pipette for approximately one hour before first use.
2. Using the USB Charger: connect the charger to the pipette's USB socket, and plug the charger adapter into a power outlet (mains).
3. Using the charging stand or carousel: make sure the charging stand is connected to a power outlet (mains), and insert the pipette into the grooves on the charging stand so that the charging contacts meet.
4. Insert the replaceable Safe-Cone Filter(s) into the tip cone(s) before use, to reduce the possible risk of the pipette becoming contaminated. Alternatively, you may use filter tips.
5. Press the on/off button on top of the pipette to turn the power on.
6. Press the tip ejector when indicated by the display.
7. The pipette is now ready for programming and use.



2.1. Charging

It is recommended that you charge the pipette before first use for one (1) hour.

f Charging via USB:

Connect the USB cable to the pipette and plug the charger into the mains power outlet.

f Charging using charging stand or carousel:

Make sure that the charging stand is connected to the mains power outlet via the AC charger, and that the charging contacts of the pipette are properly in contact with the charging grooves of the charging stand.

Charging options for Sartorius electronic pipettes:

f USB charger, universal, included in the package

Sartorius Charging Stand for one pipette, order code: 130911

f Sartorius Charging Carousel for four pipettes, order code: 130991

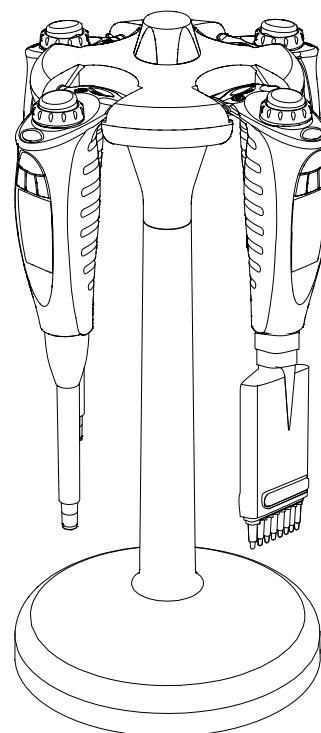
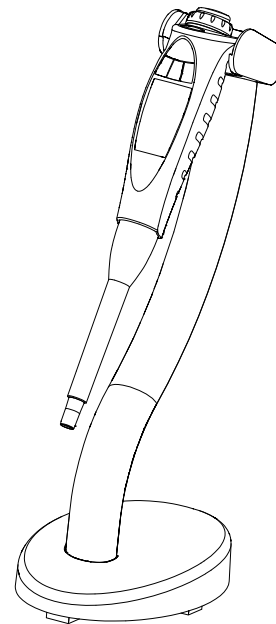
The battery sign in the bottom right corner of the display indicates the battery's level of charge. When the battery is low, the indicator blinks Low and the pipette needs to be charged.

Note: Before connecting the AC charger to the charging stand and the mains electrical outlet, make sure that the power supply output voltage level and power capacity are correct. The use of incorrect power supplies may damage the device. Only use the power supplies recommended by the manufacturer.

2.2. Power Up

1. Press on/off button: pipette will turn on.
2. Press the tip ejector button as advised on the display. The pipette is now ready to be programmed and used.
3. While being used and/or charged, the pipette is in active mode, all the processor functions are activated and the display backlight is on.
4. One minute after last activity the pipette will switch to power saving mode and the backlight will dim. The pipette returns to active mode when any buttons are pressed or if the adjustment wheel is turned.
5. 10 minutes after last activity the backlight turns off, but the display is still visible. The pipette returns to active mode when any buttons are pressed or if the adjustment wheel is turned.
6. 10 minutes after last activity the pipette turns off. To power up the pipette again, press either operating button or the on/off button. The pipette will also turn on when charged.

If the pipette is turned off from the on/off button, it can only be turned on by again using the same button.



3. Operation

3.1. Operating Principles

Pipetting functions are controlled using the operating button, adjustment wheel, and Softkeys. The Hotkey is used to store or activate programs.

Operating button

f Confirms settings (can be used as an alternative to the Softkey for OK) and initiates piston movement for aspiration, dispensing and repeated blow-out.

Adjustment wheel

f Scrolls the menu and adjusts volume settings.

f Moves the piston in manual and titrating modes for aspiration and dispensing.

f Unlocks volume adjustment for editing when turned fully in one direction.

Electronic tip ejector

f Ejects the tip(s) with the light touch of a finger

Left Softkey

f Menu: Displays the main mode selection.

f Back: Exits the currently displayed, menu, edit, or ADV functions, without saving changes.

f Quit: Quits the pipetting task.

f Lock: Shown when reminders are triggered. Locks the pipette.

Middle Softkey

f Edit: Activates the editing mode so that settings can be changed.

f Next: Active in editing mode. Confirms a setting and moves to the next one.

f Save: Active in memory settings. Saves the current program to the selected memory place.

f ABC|abc|`|~|_|#|@|!|clear: Active in memory settings and setup settings. Allows you to select letters, numbers, or symbols, or clear existing text.

f Reset: Active in the reminders menu. Resets the date and cycle counters.

f Prev: Active in editing mode. Moves back to the previous setting.

f Snooze: Shown when reminders are triggered. Snoozes the reminder.

f Unlock: Active when pipette is locked. Unlocks the pipette. If password protection is enabled, the administrator password is required.

Right Softkey

f ADV: Displays available advanced functions for the activated main mode.

f OK: Confirms the setting or selection and exits.

Hotkey

f ` memory places to save and activate frequently used or favorite pipette settings.



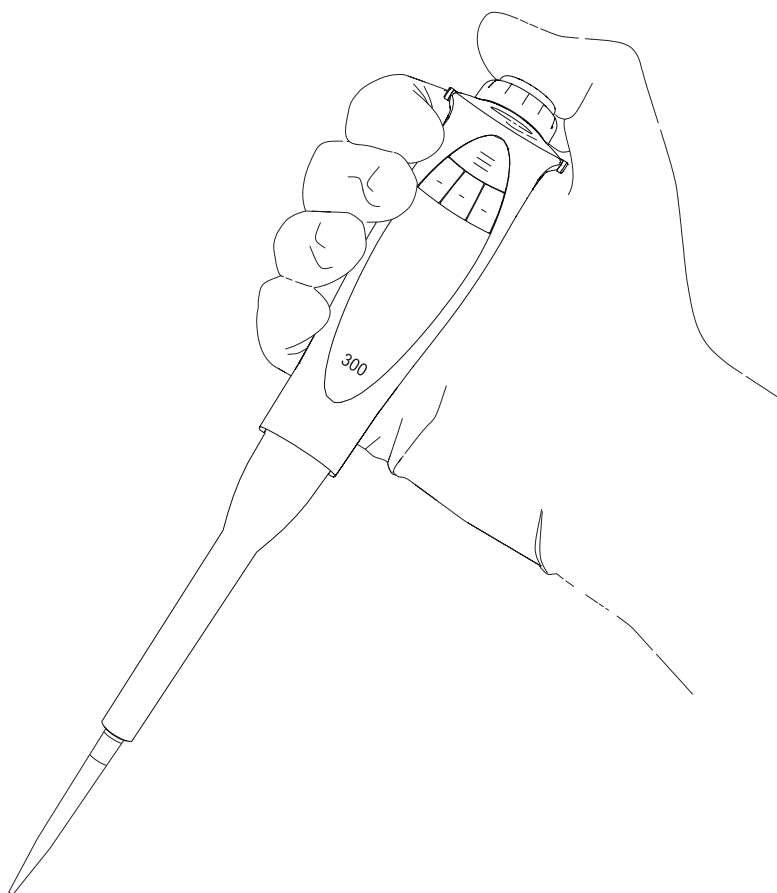
3.2. Pipetting Modes

The Picus® Nxt electronic pipette has nine (⁹) main pipetting modes, while the Picus® has eight (⁸). The Picus® Nxt has seven (⁷) advanced functions and the Picus® has six (⁶).

Pipetting Modes	Advanced Functions (ADV)*						
	Plate Tracker	Mixing	Counter	Excess Volume Adjustment	Auto-Dispensing	Fast Dispensing	Repeated Blow-out
Pipetting	n	n	n				n
Reverse Pipetting	n		n	n			
Manual Pipetting							n
Multi-Dispensing	n			n	n		
Diluting		n					n
Sequential Dispensing				n			
Multi-Aspiration							n
Titration						n	
Protocols**		n		n	n	n	n

* Advanced functions are used in conjunction with the pipetting modes.

** The availability of advanced functions varies according to the pipetting mode selected. Highlighted available in Picus® Nxt models.



3.2.1. Pipetting (Forward Pipetting)

Pipetting mode aspirates and then dispenses the selected volume of liquid. It is recommended for aqueous liquids, liquids containing small amounts of detergent or proteins, and solvents.

To select Pipetting mode:

1. Select menu by pressing the left Softkey.
2. Confirm Pipetting mode by pressing the operating button or the right Softkey for OK. The latest settings used will then be displayed.

To edit the volume and speed settings:

1. Press the middle Softkey for edit or turn the adjustment wheel all the way to the right or left. The first setting to be edited is now highlighted.
2. Turn the adjustment wheel to set the desired value.
3. Confirm the setting by pressing
 - a. the operating button or the right Softkey for OK, which will exit the editing mode.Or
 - b. the middle Softkey for next, to move on to edit the next highlighted setting.
4. Repeat steps 2 and 3 for all the settings you wish to edit.
5. To exit the editing mode without saving changes, press the left Softkey for back.

To use the pipette with the selected program:

1. Press the operating button to aspirate the liquid.
2. Press the operating button again to dispense the liquid.
3. Eject the tip by pressing the electronic tip ejector button.

Advanced Functions

Counter, Mixing, and Tracker can be used in conjunction with Pipetting mode. In Picus® Nxt, Repeated Blow-out can also be used. Repeated Blow-out helps to remove residual liquid from the tip, for liquids where normal dispensing does not empty it sufficiently.

- f Counter counts the number of times a liquid is dispensed. Counting can be set to start at any number.
- f Mixing mixes liquids manually or automatically. The mixing volume can be adjusted according to the pipette's maximum volume.
- f Tracker displays the location to next dispense liquid in a microplate.

For more information on using advanced functions see [section 3.2.1.1](#).

Note: Only one advanced function can be selected at a time. Repeated Blow-out can be combined with other advanced functions.

3.2.2. Reverse Pipetting

Reverse Pipetting aspirates the selected volume as well as an excess volume. It is recommended for biological, foaming, and viscous liquids. In Reverse Pipetting mode the excess is left inside the tip and then discarded.

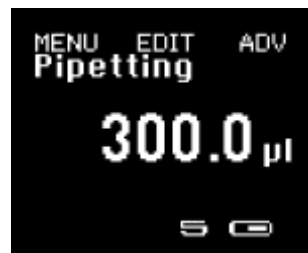
To select Reverse Pipetting mode:

1. Select menu by pressing the left Softkey.
2. Use the adjustment wheel to select Reverse and confirm by pressing the operating button or the right Softkey for OK. The latest settings used will then be displayed.

To edit the volume and speed settings:

1. Press the middle Softkey for edit or turn the adjustment wheel all the way to the right or left. The first setting to be edited is now highlighted.

1.



Press the Softkey for menu



Choose the mode



Press the Softkey for edit



Change settings and press OK or next

- ϣ. Turn the adjustment wheel to set the desired value.
- ϣ. Confirm the setting by pressing
 - a. the operating button or the right Softkey for OK, which will exit the editing mode.
 Or
 - b. the middle Softkey for next, to move on to edit the next highlighted setting.
- ξ. Repeat steps ϣ and ϣ for all settings you wish to edit.
- ο. To exit the editing mode without saving changes, press the left Softkey for back.

To use the pipette with the selected program:

- ϣ. Press the operating button to aspirate the liquid (selected volume + excess).
- ϣ. Press the operating button again to dispense the selected volume.
- ϣ. To continue reverse pipetting without discarding the excess volume, press the left Softkey for no and return to step ϣ.
- ξ. To discard the excess volume and empty the tip, press the operating button twice.
- ο. Eject the tip by pressing the electronic tip ejector button.

Advanced Functions

Counter, Excess Adjustment, and Tracker can be used in conjunction with Reverse Pipetting.

- f Counter counts the number of times a liquid is dispensed. Counting can be set to start at any number.
- f Excess Adjustment can be used to set the excess volume. Otherwise a default value is used.
- f Tracker displays the location to next dispense liquid in a microplate.

For more information on using advanced functions see [section ϣ,ϣ,ϣ](#).

Note: Only one advanced function can be selected at a time.

ϣ,ϣ,ϣ. Multi-Dispensing

Multi-Dispensing aspirates the total volume as well as an excess volume, then repetitively dispenses equal volumes of liquid. It is recommended for long pipetting series and microplate dispensing.

To select Multi-Dispensing mode:

- ϣ. Select menu by pressing the left Softkey.
- ϣ. Use the adjustment wheel to select Multi-Disp and confirm by pressing the operating button or the right Softkey for OK. The latest settings used will then be displayed.

To edit the settings for volume, speed, and number of dispensings:

- ϣ. Press the middle Softkey for edit or turn the adjustment wheel all the way to the right or left. The first setting to be edited is now highlighted.
- ϣ. Turn the adjustment wheel to set the desired value.
- ϣ. Confirm the setting by pressing
 - a. the operating button or the right Softkey for OK, which will exit the editing mode.
 Or
 - b. the middle Softkey for next, to the next highlighted setting.
- ξ. Repeat steps ϣ and ϣ for all settings you wish to edit.
- ο. To exit the editing mode without saving changes, press the left Softkey for back.



Dispensing 10 µl twelve times.

To use the pipette with the selected program:

1. Press the operating button to aspirate the liquid (selected volume + excess).
2. Press the operating button again to discard the prime excess.
3. Press the operating button repeatedly until all aliquots have been dispensed.
4. To continue repetitive dispensing without discarding the excess volume, press the left Softkey for no and return to step 1.
5. To discard the excess volume and to empty the tip, press the operating button twice.
6. Eject the tip by pressing the electronic tip ejector button.

Advanced Functions

Excess Adjustment, timed Automated Dispensing, and Tracker can be used in conjunction with Multi-Dispensing.

- f Excess Adjustment can be used to set the excess volume.
- f Timed Automated Dispensing dispenses automatically without needing the operating button to be pushed each time.
- f Tracker displays the location to next dispense liquid in microplate dispensing.

For more information on using advanced functions see section 3.2.10.

Note: Only one advanced function can be selected at a time.

3.2.4. Manual Pipetting

In Manual Pipetting the piston movement in aspiration and dispensing is controlled manually by turning the adjustment wheel. It is ideal for measuring reagents, and for applications in which the pipetting speed needs to be controlled manually.

To select Manual Pipetting mode:

1. Select menu by pressing the left Softkey.
2. Use the adjustment wheel to select Manual and confirm by pressing the operating button or the right Softkey for OK.

To edit the volume and speed settings:

1. Press the middle Softkey for edit or turn the adjustment wheel all the way to the right or left. The first setting to be edited is now highlighted.
2. Turn the adjustment wheel to set the desired value.
3. Confirm the setting by pressing
 - a. the operating button or the right Softkey for OK, which will exit the editing mode.Or
 - b. the middle Softkey for next, to move on to edit the next highlighted setting.
4. Repeat steps 2 and 3 for all settings you wish to edit.
5. To exit the editing mode without saving changes, press the left Softkey for back.

To use the pipette with the selected program:

1. Press the operating button to begin aspiration.
2. To aspirate the liquid, press the operating button again and hold it down, or turn the adjustment wheel to the right. The aspiration speed can be adjusted by how far the adjustment wheel is turned. To pause aspiration, briefly release the operating button or adjustment wheel.
3. To begin dispensing, turn the adjustment wheel to the left. Hold the adjustment wheel to the left or press the operating button down to continue dispensing.



Manual pipetting

- ξ. When the entire volume is dispensed, press the operating button to empty the tip or press the left Softkey for no to continue with aspiration.
- ο. Eject the tip by pressing the electronic tip ejector button.

Advanced Functions

Repeated Blow-out, available with Picus® Nxt, can be used in conjunction with Manual Pipetting mode for liquids where normal dispensing does not completely empty the tip.

For more information on using advanced functions [see section 3,2,10](#).

3,2,9. Diluting

In Dilution mode liquids separated by an air gap are aspirated and then dispensed simultaneously. Diluting can be used to dilute samples and reagents. The diluent is aspirated first followed by an air gap, then the sample or reagent to avoid contamination.

To select Diluting mode:

- 1. Select menu by pressing the left Softkey.
- 2. Use the adjustment wheel to select Diluting and confirm by pressing the operating button or the right Softkey for OK.

To edit the volume and speed settings:

- 1. Press the middle Softkey for edit or turn the adjustment wheel all the way to the right or left. The first setting to be edited is now highlighted.
 - 2. Turn the adjustment wheel to set the desired value.
 - 3. Confirm the setting by pressing
 - a. the operating button or the right Softkey for OK, which will exit the editing mode.
- Or
- b. the middle Softkey for next, to move on to edit the next highlighted setting.
- ξ. Repeat steps 2 and 3 for all settings you wish to edit.
 - ο. To exit the editing mode without saving changes, press the left Softkey for back.

To use the pipette with the selected program:

- 1. Press the operating button to aspirate the diluent.
- 2. Press the operating button again to aspirate the air gap.
- 3. Press the operating button a third time to aspirate the sample.
- ξ. Dispense the entire volume by pressing the operating button.
- ο. Empty the tip by pressing the operating button again.
- 6. Eject the tip by pressing the electronic tip ejector button.

Advanced Functions

Repeated Blow-out (Picus® Nxt only) and Mixing can be used in conjunction with Diluting.

- f Mixing mixes liquids manually or automatically. The mixing volume can be adjusted according to the pipette's maximum volume.
- f Repeated Blow-out helps to remove residual liquid from the tip, for liquids where normal dispensing does not empty it sufficiently.

For more information on using advanced functions [see section 3,2,10](#).

3.2.6. Sequential Dispensing

Sequential Dispensing repeatedly dispenses selected volumes in any desired order. This is a useful mode for diluting series and making calibration curves.

To select Sequential Dispensing mode:

1. Select menu by pressing the left Softkey.
2. Use the adjustment wheel to select Seq. Disp. and confirm by pressing the operating button or the right Softkey for OK. The latest settings used will then be displayed.

To edit the settings for speed, number of aliquots, and aliquot volumes:

1. Press the middle Softkey for edit or turn the adjustment wheel all the way to the right or left. The first setting to be edited is now highlighted.
2. Turn the adjustment wheel to set the desired value.
3. Confirm the setting by pressing
 - a. the operating button or the right Softkey for OK, which will exit the editing mode.

Or

- b. the middle Softkey for next, to move on to edit the next highlighted setting.
4. Repeat steps 2 and 3 for all settings you wish to edit.
5. To exit the editing mode without saving changes, press the left Softkey for back.

To use the pipette with the selected program:

1. Press the operating button to aspirate the selected volume.
2. Press the operating button again for pre-out to make sure that the first aliquot will be of the correct volume.
3. Dispense the set aliquots by pressing the operating button each time.
4. After the last aliquot has been dispensed, press the operating button to empty the tip or press no to start aspirating without emptying the remaining liquid.
5. Eject the tip by pressing the electronic tip ejector button.

Advanced Functions

Repeated Blow-out (Picus® Nxt only) and Excess Adjustment can be used in conjunction with Sequential Dispensing.

f Excess Adjustment can be used to set the excess volume.

f Repeated Blow-out helps to remove residual liquid from the tip, for liquids where normal dispensing does not empty it sufficiently.

For more information on using advanced functions see [section 3.2.10](#).

3.2.7. Multi-Aspirating

Multi-Aspiration aspirates a selected volume a set number of times.

Multi-Aspirating is useful for sample pooling and microplate washing.

Select the volume and the number of aspirations, aspirate until the series is completed, then discard the full aspirated volume in a single step.

To select Multi-Aspiration mode:

1. Select menu by pressing the left Softkey.
2. Use the adjustment wheel to select Multi-Aspiration and confirm by pressing the operating button or the right Softkey for OK. The latest settings used will then be displayed.

To edit the settings for speed, volume, and number of aspirations:

1. Press the middle Softkey for edit or turn the adjustment wheel all the way to the right or left. The first setting to be edited is now highlighted.
2. Turn the adjustment wheel to set the desired value.
3. Confirm the setting by pressing
 - a. the operating button or the right Softkey for OK, which will exit the editing mode.Or
 - b. the middle Softkey for next, to move on to edit the next highlighted setting.
4. Repeat steps 2 and 3 for all settings you wish to edit.
5. To exit the editing mode without saving changes, press the left Softkey for back.

To use the pipette with the selected program:

1. Press the operating button repeatedly until all the set volumes are aspirated.
2. To dispense the liquid and empty the tip, press the operating button again.
3. Eject the tip by pressing the electronic tip ejector button.

Advanced Functions

Repeated Blow-out, available with Picus® Nxt, can be used in conjunction with Multi-Aspiration mode, for liquids where normal dispensing does not completely empty the tip.

For more information on using advanced functions see section 3.2.10.

3.2.8. Titration

In Titration mode, the full volume is aspirated and then dispensing speed is manually controlled. The display shows the dispensed volume in real time during dispensing. Titration is used to determine the unknown concentration of an identified analyte.

To select Titration mode:

1. Select menu by pressing the left Softkey.
2. Use the adjustment wheel to select Titration and confirm by pressing the operating button or the right Softkey for OK. The latest settings used will then be displayed.



Titration mode

To edit the settings for speed, volume, and volume for Fast Dispensing (if enabled):

1. Press the middle Softkey for edit or turn the adjustment wheel all the way to the right or left. The first setting to be edited is now highlighted.
2. Turn the adjustment wheel to set the desired value.
3. Confirm the setting by pressing
 - a. the operating button or the right Softkey for OK, which will exit the editing mode.Or
 - b. the middle Softkey for next, to move on to edit the next highlighted setting.
4. Repeat steps 2 and 3 for all settings you wish to edit.
5. To exit the editing mode without saving changes, press the left Softkey for back.

To use the pipette with the selected program:

1. Press the operating button to aspirate the set volume.
2. Press the operating button again and hold it down, or turn the adjustment wheel to the left to dispense the liquid. The dispensing

speed can be adjusted by how far the adjustment wheel is turned. To pause dispensing, briefly release the operating button or adjustment wheel.

- ϣ. To finish titrating, empty the tip by pressing the operating button twice.
- ξ. When the titration cycle is completed, eject the tip by pressing the electronic tip ejector button.

Advanced Functions

Fast Dispensing can be used with the Titration mode. Fast Dispensing dispenses the first volume automatically, then subsequent volumes are dispensed manually.

For more information on using advanced functions [see section ϣ,ϣ.ϣ](#).

ϣ,ϣ,ϣ. Protocols (Only in Picus® Nxt)

User-definable protocols speed up routine pipetting sequences. A maximum of ten pipetting and advanced function combinations can be used within a protocol. For example, pipetting with mixing counts as one combination. For operating buttons, [see ϣ,ϣ. Product Overview](#).

To set up or edit a pipetting protocol:

- ϣ. Select menu by pressing the left Softkey.
- ϣ. Use the adjustment wheel to select Protocols and confirm by pressing the operating button or the Softkey for OK.
- ϣ. Use the adjustment wheel to select the desired protocol to set up or edit (P¹-P^ϣ).
- ξ. Press the middle Softkey for edit.
 - a. If the protocol has not yet been set up, you are first asked to enter a protocol name.
 - b. If the protocol already exists either:
 - i. Continue editing by pressing the Softkey for edit. Then go to step ϣ. When editing an existing protocol, it is not possible to edit the protocol name.
Or
 - ii. Clear the existing protocol by pressing the operating button or the Softkey for OK.
- ο. Edit the name of the protocol by pressing the Softkey for edit, or accept the name with the Softkey for OK.
 - a. When entering editing mode, the first character becomes highlighted and can be edited.
 - b. Capital letters are used by default. Use the middle Softkey to change the character type: ABC for capital letters, abc for lower case letters, 123 for numbers and #@! for other characters.
 - c. Turn the adjustment wheel to select your chosen character and confirm by pressing the operating button or the right Softkey for OK.
 - d. The next character to be edited is then highlighted. Repeat steps b and c until you have entered the name.
 - e. Press the operating button or the softkey for OK to accept the changes and exit the editing mode.
- ϣ. To add a step into a protocol:
 - a. Select Add step with the adjustment wheel and confirm with the operating button or Softkey for OK.
 - b. Select the desired pipetting mode with the adjustment wheel and confirm with the operating button or Softkey for OK.
 - i. You can select all main pipetting modes and the timer. The timer alerts the user when a defined period of time has elapsed.
 - ii. Each main pipetting mode, optionally combined with an

advanced function and the timer, counts as one step in a protocol. A maximum of 10 steps can be included in a protocol.

- c. If needed, edit the mode settings. Move from one setting to the next (including additional modes) using the Softkey for next. Change settings using the adjustment wheel.
 - i. Settings order: basic mode settings (volume|number of dispenses|number of aspirations) – speed settings – advanced function settings.
 - ii. Advanced function settings can be changed using the adjustment wheel.
- d. When in basic mode settings or speed settings, you can save the step using the operating button or the Softkey for save. When the Softkey for save is pressed, all settings in the step are saved.
- e. Repeat the process from 1. a. to 1. d. until the protocol is ready.
2. To edit a step:
 - a. Use the adjustment wheel to select the step you wish to edit and confirm by pressing the operating button or the Softkey for edit.
 - b. Follow the steps in 1. c. to 1. d. until the editing is completed.
3. To remove a step:
 - a. Use the adjustment wheel to select Delete step and confirm with the operating button or the Softkey for OK. The pipette then lists the available steps.
 - b. Use the adjustment wheel to select the step to be deleted and confirm with the operating button or the Softkey for OK.
4. To save the protocol, press the Softkey for save.
Or
Press the Softkey for back to discard your changes and return to the Protocols menu. You will be asked to confirm if you want to discard your changes: press the appropriate Softkey for yes or no. If you select no you will be returned to the editing menu.

To activate a pipetting protocol:

1. Select menu by pressing the left Softkey.
2. Use the adjustment wheel to select Protocols and confirm by pressing the operating button or the Softkey for OK.
3. Use the adjustment wheel to select the desired protocol (P1-P5). Confirm by pressing the operating button or the Softkey for OK. The selected Protocol is now active. You can only activate a protocol that has been set up. To set up protocols please go to the start of [section 3, 2, 1](#).

To use a pipetting protocol:

1. When a pipetting protocol is activated, you automatically start on the first step.
2. Operate the pipette by pressing the operating button.
 - a. On the screen, next to the mode name, you can see the number of the current step and the total number of steps, e.g. 1|3 means that you are on the first step of three.
 - b. The pipette automatically takes you to the next step after each one is completed.
 - c. Alternatively you can navigate through the steps by using the Softkeys for next (next) and prev (previous).
3. When all the steps in the protocol are completed, the pipette will notify you with a sound (if enabled) and the text “Protocol completed!”.
 - a. To restart the protocol, press the operating button or the Softkey for next.
 - b. To return to the last step, use the Softkey for prev.
 - c. To finish using the protocol, press the Softkey for menu and choose the next pipetting mode you wish to use.



Titration has been programmed as the first step out of five.



The protocol has run through all its steps.

Mode Settings and Advanced Functions

In Protocols, the mode settings and advanced functions are defined based on the modes selected inside the protocol. Please see main mode settings in sections 3.1 - 3.4 and advanced functions in section

3.1. Advanced Functions

Advanced functions can be optionally used in conjunction with the main pipetting modes as shown on the table on page 9 of this manual.

To activate or deactivate advanced functions, once you have already selected the main mode:

1. Press the right Softkey for ADV. All available advanced functions are listed and their current status (on/off) is displayed.
2. Scroll through the list of advanced functions using the Softkey for next.
3. Turn the selected highlighted advanced function on or off by turning the adjustment wheel.
4. Press the operating button or the Softkey for OK to accept the changes, or press the Softkey for back to discard.

Not all advanced functions can be used together. Tracker, Mixing, Auto Dispensing, and Counter cannot be active at the same time, but Repeated Blow-out (only in Picus® Nxt) can be used together with all other advanced functions. Excess Volume Adjustment doesn't affect other advanced functions.

Tracker

Tracker helps users to dispense into the correct microplate wells. It is only available on Picus® and Picus® Nxt pipettes and can be used with the following main modes: Pipetting, Reverse Pipetting, and Multi-Dispensing.

Once Tracker is activated, continue choosing the related settings.

Single-channel pipettes:

1. Select the microplate size (96 or 384 well plate) and the pipetting direction (rows or columns) by scrolling the adjustment wheel.
2. Press the operating button or the right Softkey for OK to activate Tracker.
3. The well to dispense into is shown on the display:
 - a. If pipetting in rows: A¹ - A² - A³... B¹ - B² - B³... C¹ - C² - C³... is displayed.
 - b. If pipetting in columns: ¹A - ¹B - ¹C... ²A - ²B - ²C... ³A - ³B - ³C... is displayed.
4. The first dispensing location can be selected using the edit function of each main mode.

8-channel pipettes:

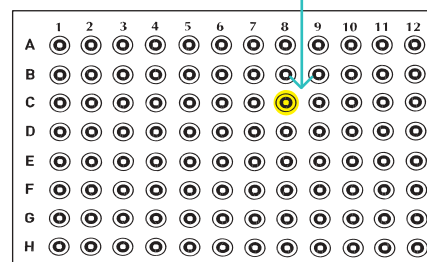
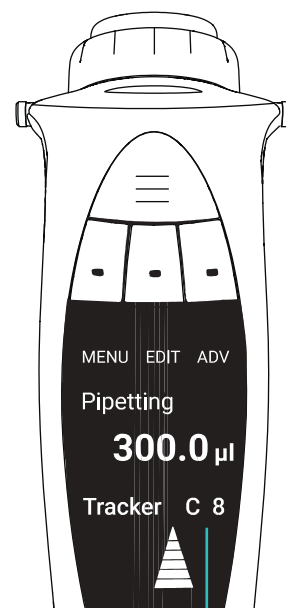
1. Select the microplate size (96 or 384 well plate). Only pipetting in columns is supported.
2. Press the operating button or the right Softkey for OK to activate Tracker.
3. The wells to dispense into are shown on the display:

For 96 well plates, columns 1, 2, 3... are shown.

For 384 well plates, columns are shown as follows:

 1. pipetting: A¹ - C¹ - E¹...
 2. pipetting: B¹ - D¹ - F¹...
 3. pipetting: A² - C² - E²...
 4. pipetting: B² - D² - F²...

etc.



- ξ. The first dispensing column can be selected using the edit function of each main mode.

12-channel pipettes:

1. Select the microplate size (96 or 384 well plate). Only pipetting in rows is supported.
2. Press the operating button or the right Softkey for OK to activate Tracker.
3. The wells to dispense into are shown on the display:
 - For 96 well plates, rows are shown as A, B, C....
 - For 384 well plates, rows are shown as follows:
 - 1. pipetting: A1 – A7 - A8...
 - 2. pipetting: A7 – A8 – A9...
 - 3. pipetting: B1 – B7 - B8...
 - ξ. pipetting: B7 – B8 – B9...
 - etc.
- ξ. The first dispensing column can be selected using the edit function of the main mode.

Counter

Counter counts the number of pipetting cycles up to 384 and can be used in conjunction with Pipetting and Reverse Pipetting modes. You can start counting from any number up to 384. The starting number can be set with the adjustment wheel directly after the advanced function has been activated, or using the edit function in the main mode.

Mixing

With the Mixing mode the pipette mixes the liquids either manually when the operating button is held down or automatically a set number of times. The Mixing mode can be used in conjunction with Pipetting and Diluting modes. The volume for mixing can be selected freely up to the maximum volume of the pipette.

To edit the volume settings and select manual or automatic:

1. Select Mixing mode. The display shows the volume used for mixing (% of the volume to be dispensed).
2. Turn the adjustment wheel to set the desired volume for mixing.
3. Confirm the setting by pressing either:
 - a. the operating button or the right Softkey for OK. This also exits the editing mode.
- Or
 - b. the middle Softkey for next, to move on to select manual or automatic mixing and the number of mixing cycles.
- ξ. If you chose 3.b, either turn the adjustment wheel to select Manual or choose the number of automatic dispensings.
- ο. Confirm the setting by pressing the operating button or the right Softkey for OK, which will also exit the editing mode.

To activate/deactivate mixing:

1. Start your chosen main mode and when the display tells you to “Start mixing”, either:
 - a. press and hold down the operating button for the duration of manual mixing.
- Or
 - b. press the operating button once to activate the automatic dispensing cycles.
- Or
 - c. press the left Softkey for no to exit Mixing.
2. You may pause mixing by pressing the operating button during the mixing cycle. By pressing it again, mixing continues.
3. You may also exit mixing during the mixing cycle by pressing the left Softkey for quit.
- ξ. Continue by emptying the tip.

Excess Adjustment

Excess Adjustment can be used to set the excess volume in Reverse Pipetting, Multi-Dispensing, and Sequential Dispensing modes, where excess volume is being used. The excess volume varies according to the volume range of the pipette.

To set the excess volume:

1. Turn the adjustment wheel to select the desired volume after the advanced function has been activated. You may also press the middle Softkey for default to choose the default excess volume.
2. Confirm the selection by pressing the operating button or the right Softkey for OK.

Automated Dispensing

Automated Dispensing dispenses aliquots automatically, in timed intervals, in Multi-Dispensing mode. The user does not need to press the operating button each time liquid is dispensed. The dispensing interval can be set from 0.1 to 99.9 seconds.

To set the interval:

1. Turn the adjustment wheel to set the interval immediately after the advanced function has been activated.
2. Confirm by pressing the operating button or the right Softkey for OK.

Fast Dispensing

Fast Dispensing can only be used in Titration mode. In Fast Dispensing, the first selected portion of the total volume is dispensed automatically, and the remaining volume is dispensed manually.

To set the volume for Fast Dispensing:

1. Turn the adjustment wheel to set the desired volume immediately after the advanced function has been activated.
2. Confirm by pressing the operating button or the right Softkey for OK.

Repeated Blow-out (only in Picus® Nxt)

Repeated Blow-out allows the user to activate and repeat the blowout of remaining liquid droplets, for dispensing liquids that would normally leave a residue in the tip. Repeated Blow-out is available with Pipetting, Manual Pipetting, Diluting, and Multi-Aspiration modes.

To activate/deactivate Blow-out:

1. Start your chosen main mode.
2. Once the pipetting cycle has ended, you may repeat the blowout by pressing the operating button as many times as necessary.
3. To exit Blow-out, turn the adjustment wheel or eject the tip by pressing the tip ejector button.

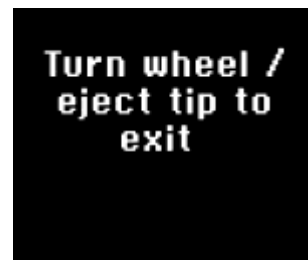
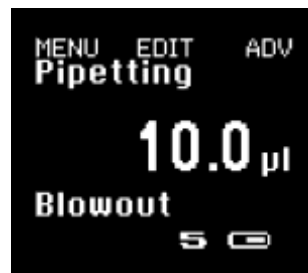
2.3. Saving Pipetting Programs to Memory

All Picus® and Picus® Nxt models allow 10 programs to be saved in the pipette memory. In the Picus® Nxt, sequences of pipetting modes can be stored as protocols (see section 2.3.1). For operating buttons, see 1.2. Product Overview.

To save a program:

1. Choose the pipetting mode and edit the settings (see previous section), then press the Hotkey to see available memory places.
2. Choose a memory place by turning the adjustment wheel.
3. Press the middle Softkey for save.
 - a. In Picus® Nxt models, if the password feature has been activated, only the administrator profile can save programs.

2.



To exit Blow-out, turn the adjustment wheel or eject the tip by pressing the tip ejector button.



M10 indicates that the pipetting program shown has been saved in memory place 10.