IKA

designed for scientists

IKA PEN 0.5 - 10µl
IKA PEN 5 - 100µl
IKA PEN 10 - 200µl

ENGLISH

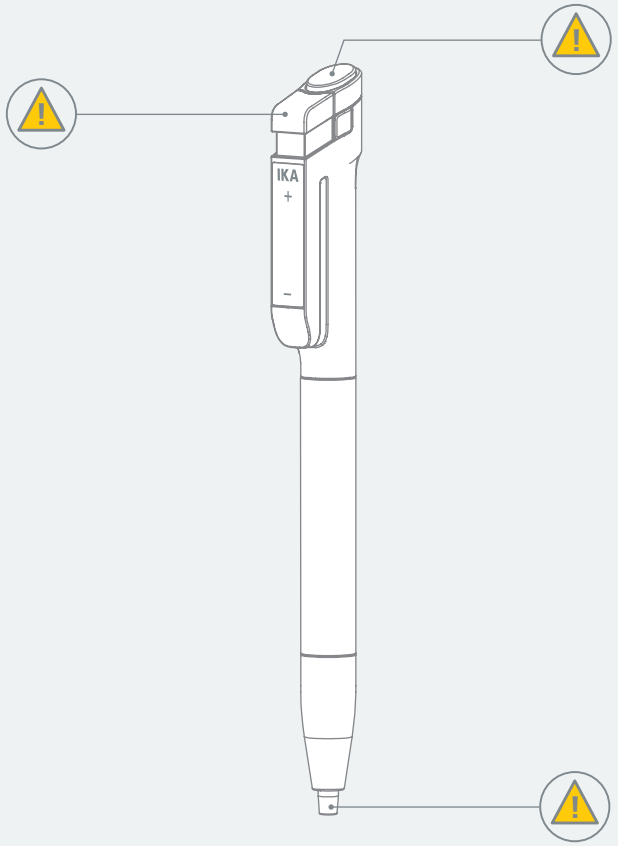


Fig. 1

Source language: German

EU Declaration of conformity

We declare under our sole responsibility that this product corresponds to the directives 2014/35/EU, 2006/42/EC, 2014/30/EU and 2011/65/EU and conforms with the following standards or normative documents: EN 61010-1, EN 60204-1, EN 61326-1, EN 60529, EN ISO 12100 and EN ISO 8655-6.

Wireless module:
Directive: 2014/53/EU Standards: EN 60950-1, EN 300328, EN 301489-1, EN 301489-17

A copy of the complete Declaration of Conformity or further declarations of conformity can be requested at **sales@ika.com**.

Note for USA (FCC)

FCC COMPLIANCE STATEMENT:
This device complies with part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications to this unit not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

FCC Radiation Exposure Statement
The device has been evaluated to meet general RF exposure requirement.
The device can be used in portable exposure condition without restriction.

Note for Canada (IC)

ISED Statement
This device complies with Innovation, Science and Economic Development licence-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) this device may not cause interference; and
(2) this device must accept any interference. Including interference that may cause undesired operation of the device.

Radiation Exposure Statement:
This product complies with the ISED RF exposure limit set forth for an uncontrolled environment and is safe for intended operation as described in this manual.

Explication of warning symbols

/// Warning symbols

Warning! Indicates a hazardous situation, which, if not avoided, can result in death, serious injury.

Caution! Indicates a potentially hazardous situation, which, if not avoided, can result in injury.

Notice! Indicates practices which, if not avoided, can result in equipment damage.

Attention! Indicates the risks due to magnetism.

Warning! Biohazards, harm to health when handling infectious fluids and pathogenic bacteria.

Warning! Toxic substances, harm to health through toxic, radioactive or aggressive chemicals.

Warning! Explosive substances, harm to health when handling explosive fluids.

/// General Symbols

A— Position number
Indicates device components relevant to actions.

Correct / result
Indicates the correct execution or the result of an action step.

Wrong
Indicates the incorrect execution of an action step.

Note
Indicates steps of actions that require particular attention.

Safety instructions

/// General information

› **Read the operating instructions completely before starting up and follow the safety instructions.**
› Keep the operating instructions in a place where it can be accessed by everyone.
› Ensure that only trained staff work with the device.
› Follow the safety instructions, guidelines, occupational health and safety and accident prevention regulations.
› The device must only be used in a technically perfect condition.

Attention – Magnetism!
› Effects of the magnetic field have to be taken into account (e.g. data storage media, cardiac pacemakers ...).

Notice!
› Pay attention to the marked sites in **Fig. 1**.

/// Device design

Notice!
› Aggressive media can damage the pipette, pipette tips, filters and other accessories. When using organic solvents and aggressive chemicals, check for material compatibility.

/// Work with the device

Warning!
› Wear your personal protective equipment in accordance with the hazard category of the media to be processed.

Warning!
› Never point the pipette tip cone or tip at yourself or other persons to avoid any risk to persons through fluids squirting out and puncture injuries.
› Only process media that will not react dangerously to the extra energy produced through processing. This also applies to any extra energy produced in other ways, e.g. through light irradiation.

Caution!
› Note the possibility of medical problems resulting when pipetting over long periods [WRULD – (work-related neck and upper limb disorders) or RSI (repetitive strain injury) syndrome].

Notice!
› Only use the pipette with correctly attached tips.
› Pipette tips are disposable items – repeated use can lead to contamination and incorrect dosing.
› Only the pipette tip may be immersed in liquid.
› The battery is not waterproof.
› Always hold the pipette upright.
› Only the rechargeable battery types specified in the technical data may be used in the device.
› Do not charge batteries that have leaked or that are discolored, deformed or damaged in any other way.
› Always use lithium-ion rechargeable batteries that are certified in your local market. Using other types of batteries may damage the device and may even cause an explosion or fire.
› Never throw the device into a fire. Keep it away from direct sunlight or temperatures above 60 °C. High temperatures will damage the battery and render it unusable. Temperatures above 100 °C may cause it to explode.

/// Pipetting recommendation

› Observe EN ISO 8655-2.

/// Accessories

› Protect the device and accessories from bumps and impacts.
› Check the device and accessories for damage before each use. Do not use damaged components.
› Safe operation is guaranteed only with the use of original IKA accessories.
› Observe the operating instructions of the accessories.
› Only use IKA original spare parts.

/// Power supply / Switching off the device

› The voltage stated on the type plate must correspond to the power voltage.
› The socket for the power cord must be easily accessible.
› Socket must be earthed (protective ground contact).
› Switch off the device properly when not in use or for cleaning.

/// Maintenance

› The device must only be opened by trained specialists, even during repair.
› Follow the cleaning instructions.
› Check the nominal volume after replacing parts that might affect it.

/// Disposal instructions

› The device, packaging and accessories must be disposed of in accordance with national regulations.
› When disposing of the battery, please tape over the contacts with adhesive tape to prevent short-circuiting due to moisture or contact with metal components. Short-circuiting may result in an explosion.
› Do not throw used battery into your household waste. Dispose of them properly in accordance with statutory regulations.
›  End users are obliged by law to return all used disposable and rechargeable batteries. Throwing them into the household waste is prohibited. Disposable / rechargeable batteries containing harmful substances are marked with this symbol to indicate that they may not be disposed of as household waste.

Intended use

/// Use

› IKA pipettes are designed for collecting and dispensing defined volumes of liquids using matching, removable, disposable pipette tips.
› The device (IKA PEN) is a motorized, electronically controlled piston-stroke pipette that works according to the air cushion principle.

/// Area of use

› Indoor environments similar to that a laboratory of research, teaching, trade or industry area.
› Any use of this device in a medical environment or in the context of IVD is the sole responsibility of the user.

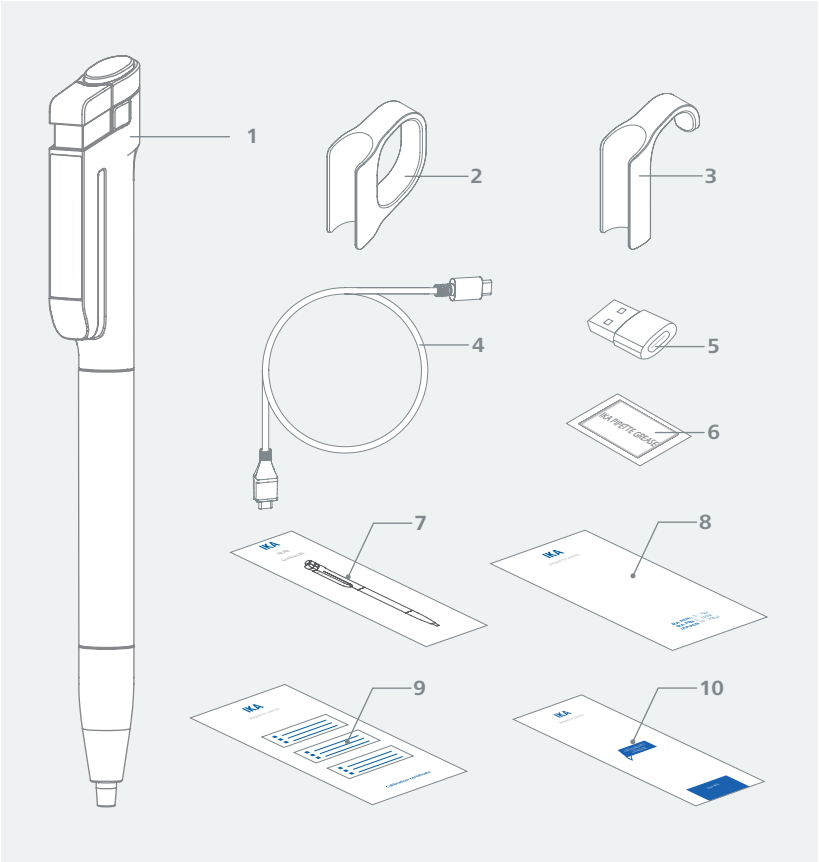
› The safety of the user cannot be guaranteed:
- if the device is operated with accessories that are not supplied or recommended by the manufacturer,
- if the device is operated improperly or contrary to the manufacture's specifications,
- if the device or the printed circuit board are modified by third parties.

Unpacking

/// Unpacking

› Unpack the device carefully. Any damage should immediately be reported to the carrier (mail, rail or freight forwarding company).

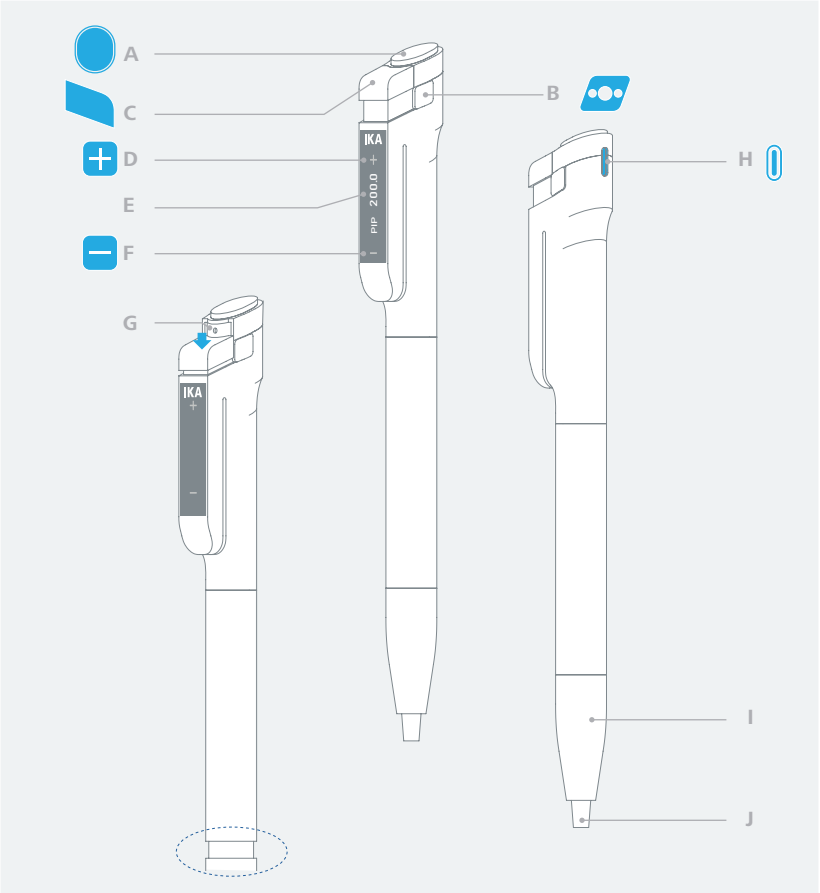
/// Scope of delivery



1	IKA PEN	6	PETTE.GR.1
2	PEN.HD.1	7	Quick guide (DE/EN)
3	PEN.HD.2	8	User guide
4	USB-C to USB-C cable	9	Calibration certificate
5	USB C-A Adapter	10	Warranty card

Operator panel and display

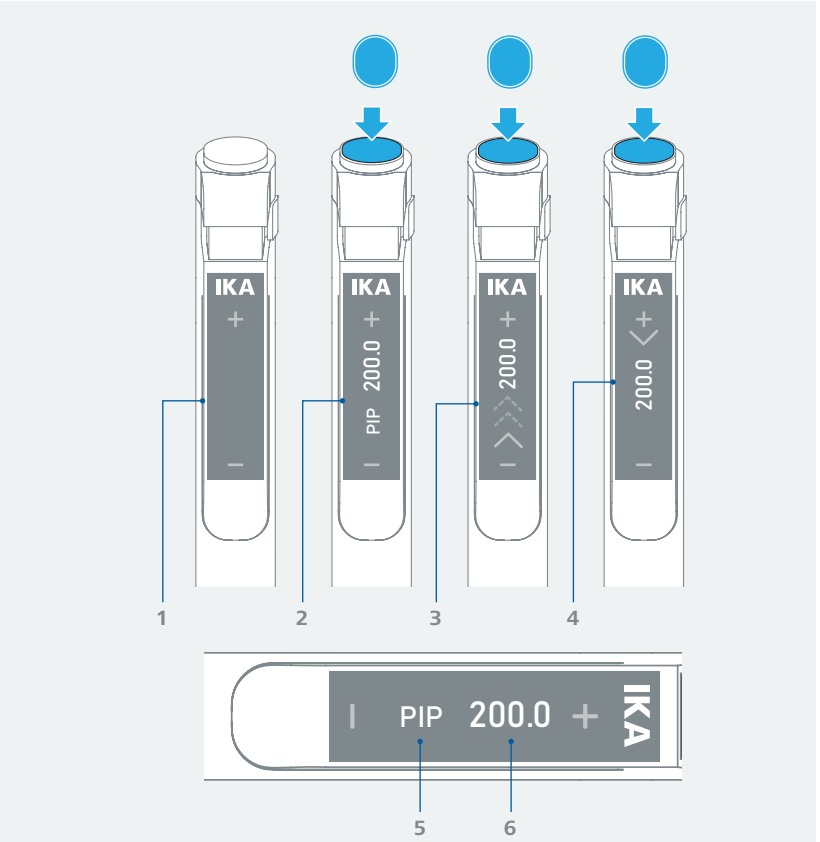
/// Operator panel



Item number	Component	Action	Function	Info
A	Pipetting button	press	Confirm / Aspirate / Dispense	
B	Multifunction button	press 2 sec.	On / Off	only possible if no pipetting process is running
		press	Menu	
			Navigate Menu	
C	Ejector button	press	Tip ejection	mechanical
D	Button "+"	touch	Increase values	only possible if no pipetting process is running
		touch and hold	Show battery status, wireless signal, count times	not available when setting volume, during pipetting process or in "SETTING" menu
E	Device display	-	Display modes, volume, arrows indicating aspiration and dispensing, etc.	
F	Button "–"	touch	Decrease values	only possible if no pipetting process is running
		touch and hold	Show device name, software version	not available when setting volume, during pipetting process or in "SETTING" menu

Item number	Component	Action	Function	Info
G	Reset opening	push with a pointed object	Reset to initial state	Only visible when the ejector is pressed; all saved settings are retained
H	USB-C interface	-	Charging	With included USB-C cable and PEN USB-C power adapter (accessory)
I	Ejector	-	Discards the pipette tip	-
J	Tip cone	-	Pick up pipette tips	-

/// Display states

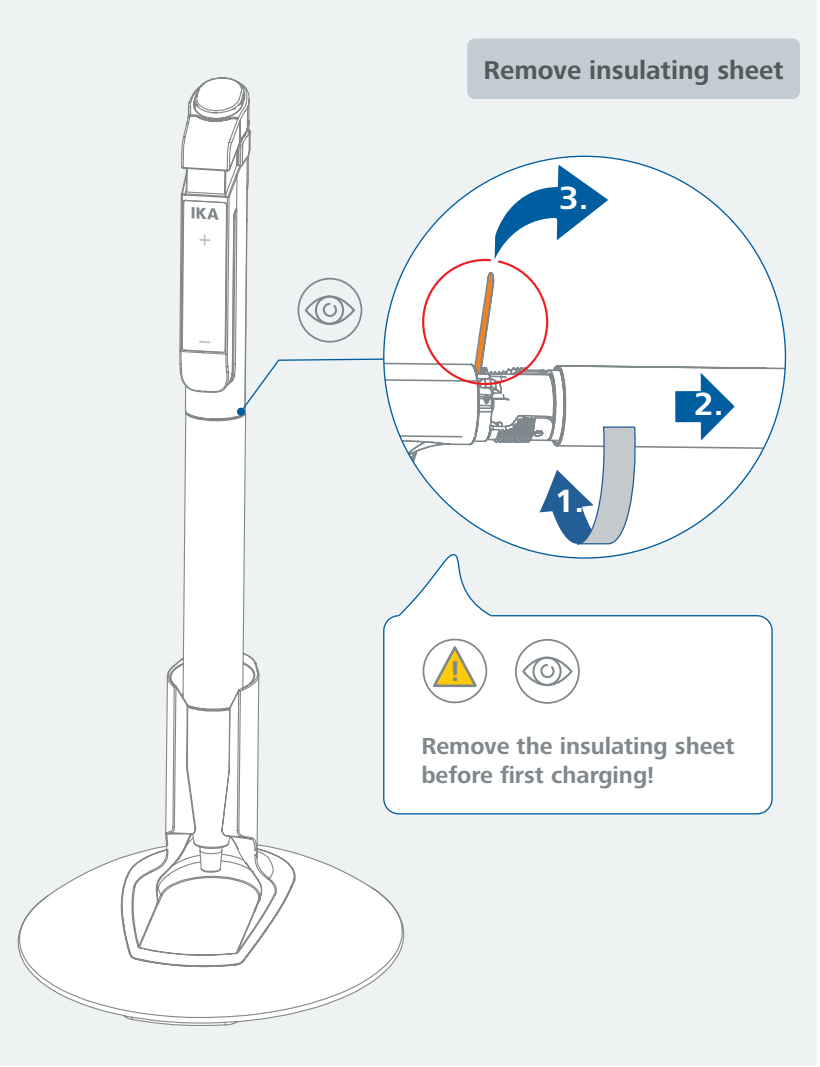


1	OFF / Sleep mode	4	Dispense
2	ON	5	Pipetting modes
3	Aspirate	6	Pipetting volume

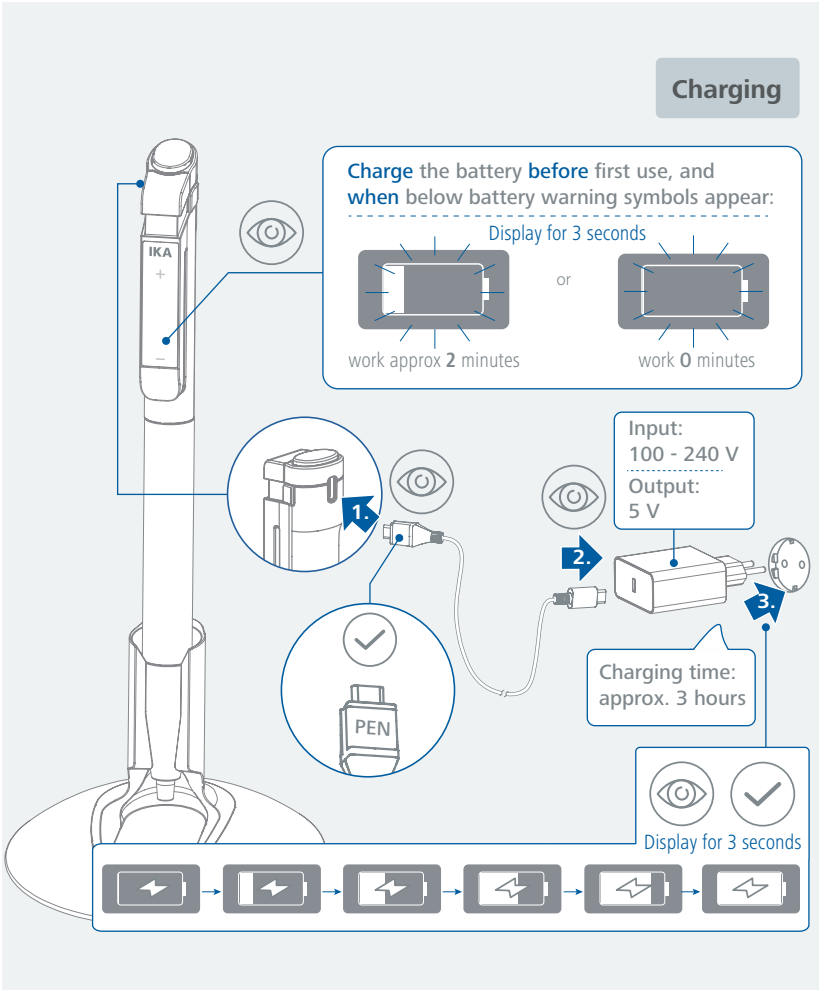
Installation

/// Charging

› IKA pipette is delivered with a partially charged battery. We recommend that users charge it for 3 hours before the first use. For first charging, remove the insulating sheet.

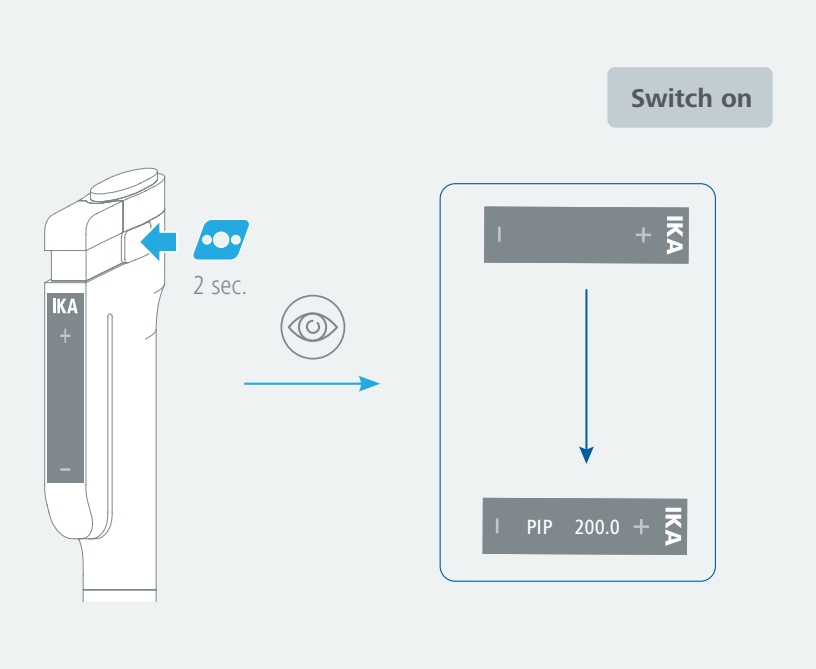


› When the device display shows the low / empty battery symbol, charge the battery promptly.
› The charging symbol will be displayed for three seconds after charging has started.
› It takes approximately 3 hours to fully charge the battery. Remove the battery if you are not going to use the device for more than two months.

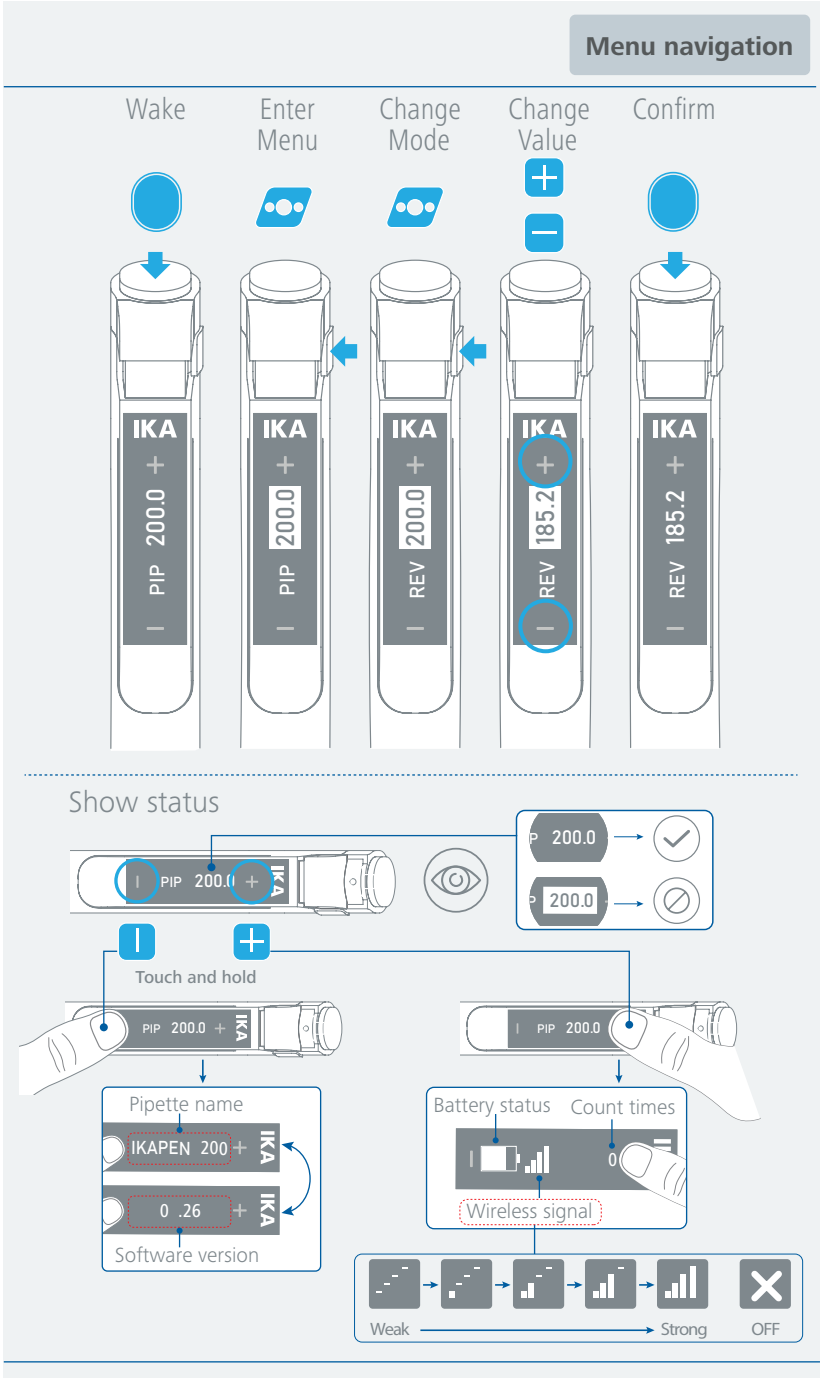


Operation

/// Switching on



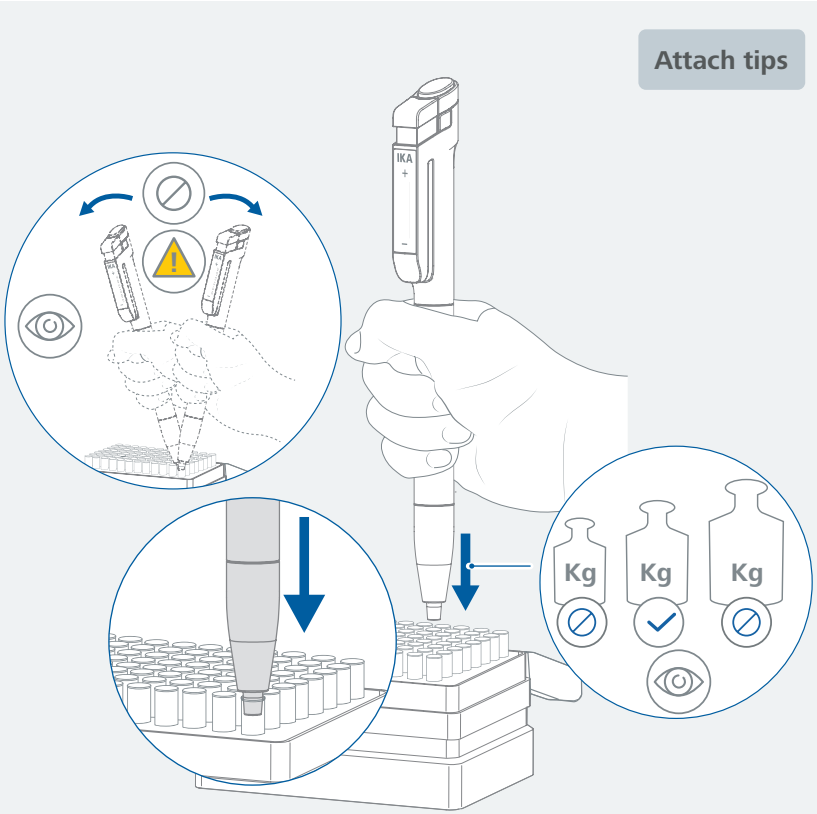
/// Menu navigation



/// Menu structure

1st level	2nd level	3rd level	Setting / Function	Values [Increment]				Factory Settings		
				IKA PEN 0.5 - 10 µl		IKA PEN 5 - 100 µl	IKA PEN 10 - 200 µl	0.5 - 10 µl	5 - 100 µl	10 - 200 µl
PIP			Volume	0.50 µl - 10.00 µl [0.01]		5.0 µl ... 100.0 µl [0.1]	10.0 µl ... 200.0 µl [0.1]	10.00 µl	100.0 µl	200.0 µl
REV			Volume	0.50 µl ... 10.00 µl [0.01]		5.0 µl ... 100.0 µl [0.1]	10.0 µl ... 200.0 µl [0.1]	10.00 µl	100.0 µl	200.0 µl
MUL			Volume	0.50 µl ... 10.00 µl [0.01]		5.0 µl ... 100.0 µl [0.1]	10.0 µl ... 200.0 µl [0.1]	2.50 µl	25.0 µl	50.0 µl
			Repetitions	1 x ... 20 x				4 x		
DIL			Volume 1	0.50 µl ... 9.50 µl [0.01]		5.0 µl ... 95.0 µl [0.1]	10.0 µl ... 190.0 µl [0.1]	5.00 µl	50.0 µl	100.0 µl
			Volume 2	0.50 µl ... 9.50 µl [0.01]		5.0 µl ... 95.0 µl [0.1]	10.0 µl ... 190.0 µl [0.1]	2.50 µl	25.0 µl	25.0 µl
MAN			Max. Volume	0.50 µl ... 10.00 µl [0.01]		5.0 µl ... 100.0 µl [0.1]	10.0 µl ... 200.0 µl [0.1]	10.00 µl	100.0 µl	200.0 µl
SETTING	WIRELESS	APP	Establish a wireless connection with devices (smartphone/tablet) that have the IKA PEN APP installed					CUT		
		WiCo	Establish a wireless connection with PEN.WiCo							
		CUT	Disconnect all wireless connections							
		BACK	Back to previous (2nd) level menu							
	SPEED	IN	Aspiration speed	S1 ... S9 [1]				S8		
		OUT	Dispensing speed	S1 ... S9 [1]				S8		
	MIX		Volume	0.50 µl ... 10.00 µl [0.01] / OFF		5.0 µl ... 100.0 µl [0.1] / OFF	10.0 µl ... 200.0 µl [0.1] / OFF	OFF		
	COUNTER		-	ON / OFF / RES				OFF		
	FLIP VIEW		Switch the display view for right- and left-handed users					Right-handed view		
	ADJUST	P1 (1-point)	TGT min. ... TGT 100%	0.50 µl ... 10.00 µl [0.01]		5.0 µl ... 100.0 µl [0.1]	10.0 µl ... 200.0 µl [0.1]	5.00 µl	50.0 µl	100.0 µl
		P2 (2-point)	TGT 10%	1.00 µl		10.0 µl	20.0 µl	1.00 µl	10.0 µl	20.0 µl
			TGT 100%	10.00 µl		100.0 µl	200.0 µl	10.00 µl	100.0 µl	200.0 µl
		P3 (3-point)	TGT 10%	1.00 µl		10.0 µl	20.0 µl	1.00 µl	10.0 µl	20.0 µl
			TGT 50%	5.00 µl		50.0 µl	100.0 µl	5.00 µl	50.0 µl	100.0 µl
			TGT 100%	10.00 µl		100.0 µl	200.0 µl	10.00 µl	100.0 µl	200.0 µl
		ADJ RESET	Reset adjustment							
		BACK	Back to previous (2nd) level menu							
	FAC RESET		Reset all setting values to factory setting							
	BACK		Back to previous (1st) level menu							

/// Attaching pipette tips



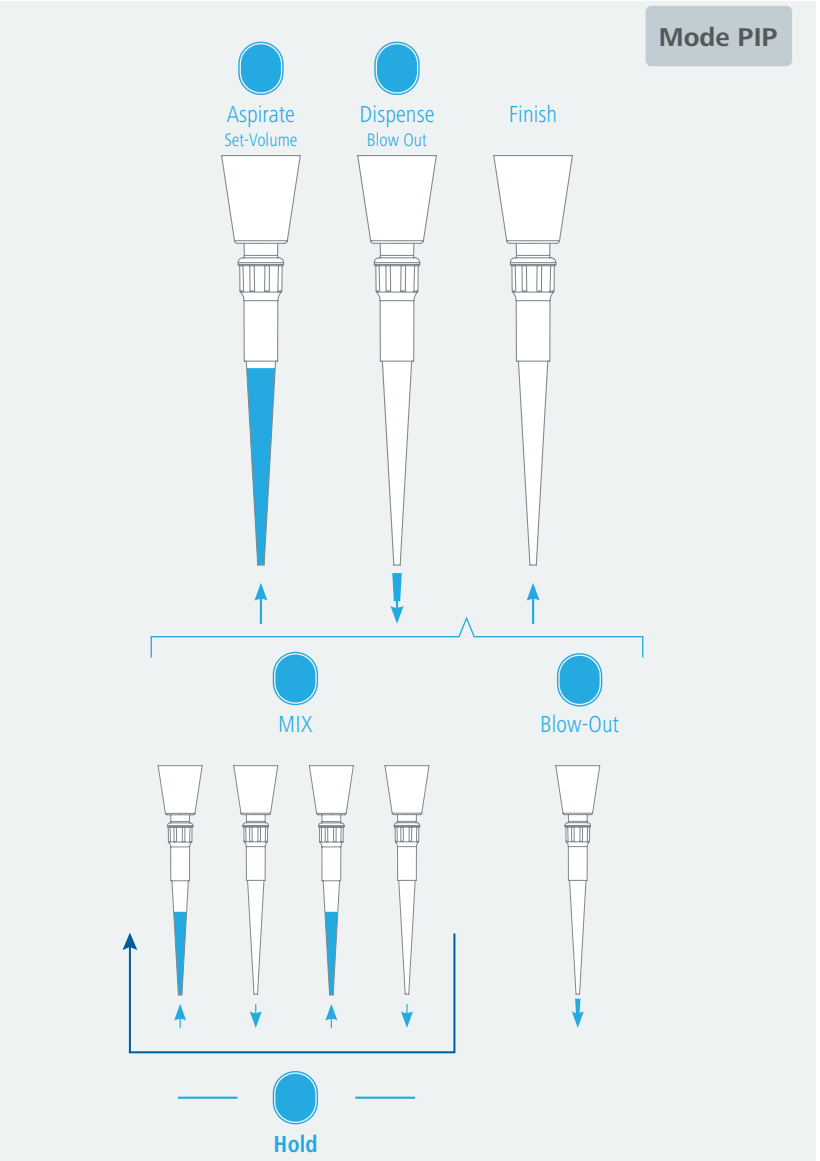
/// Pipetting modes

› Operate the pipette in PIP, REV, MUL, DIL or MAN mode.
› The following information, which explains the symbol "*", applies to all five pipetting modes.

i * The pipette will automatically return to the starting position 0,5 sec after blowing out. If you hold the pipetting button, the pipette will only return to the starting position when you release the button. This can be used to completely empty the pipette tip of slow-moving liquids and swipe off a drop from the pipette tip.

Mode PIP (Standard)

Aspirate and dispense set volume

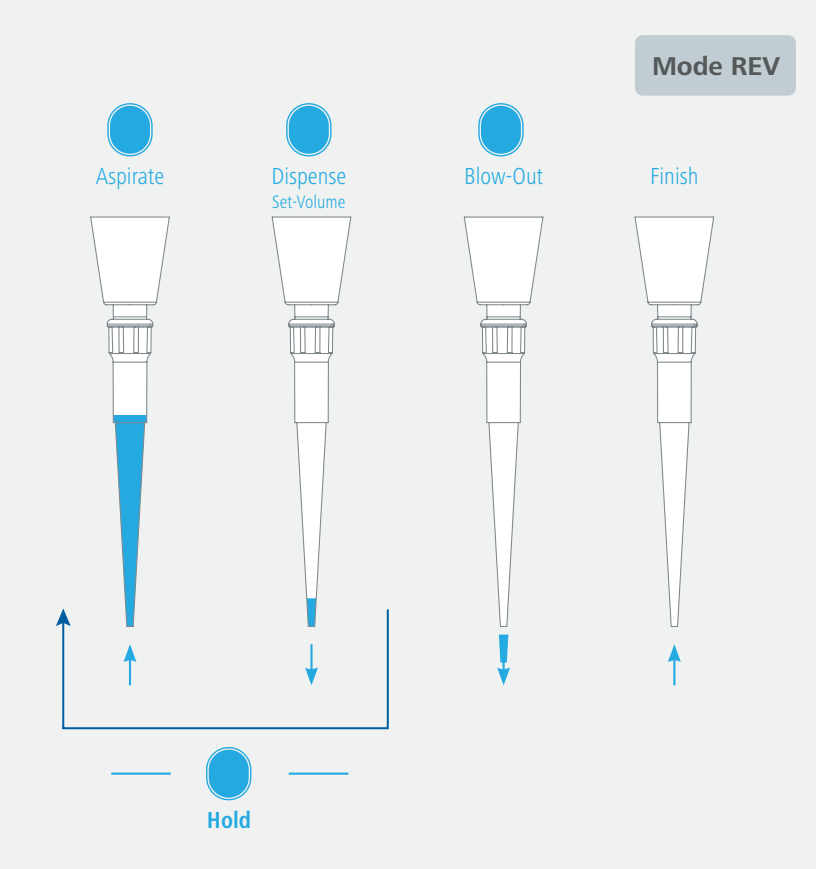


Implementation: When the mixing function is deactivated (MIX = 0)
1. Press the pipetting button to fill the pipette tip with liquid.
2. Press (and hold*) the pipetting button to dispense the liquid with additional blowout.

Implementation: When the mixing function is activated (MIX > 0)
1. Press the pipetting button to fill the pipette tip with the first liquid.
2. Press and hold the pipetting button to dispense the liquid into the second liquid, and then the liquid will be continuously aspirated and dispensed with the set mixing volume until you release the button.
3. Double click (and hold*) the pipetting button to blow out the residual volume.

Mode REV (Reverse)

Dispense set volume for higher viscous liquids

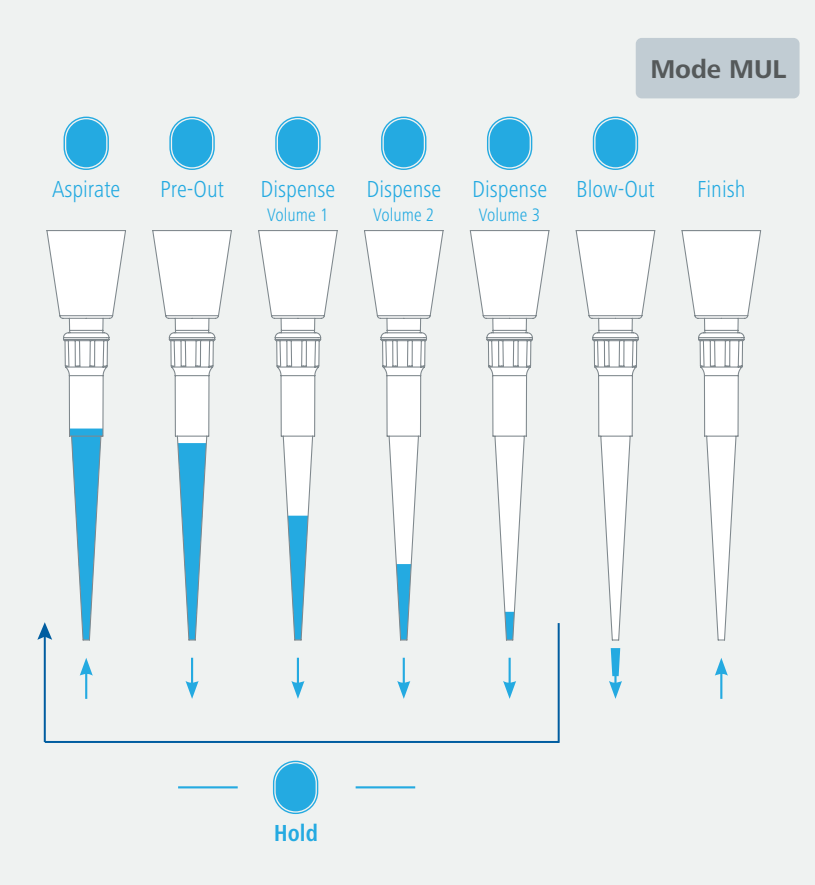


Implementation:

1. Press the pipetting button to fill the pipette tip with liquid.
2. Press the pipette button to dispense the liquid, or hold down the pipette button while dispensing to perform an additional aspiration step. You can repeat this step as often as you like. Press the pipette button again to finally dispense the liquid.
3. Double click (and hold*) the pipetting button to blow out the residual volume.

Mode MUL (Multi)

Dispense set volume multiple times



Implementation:

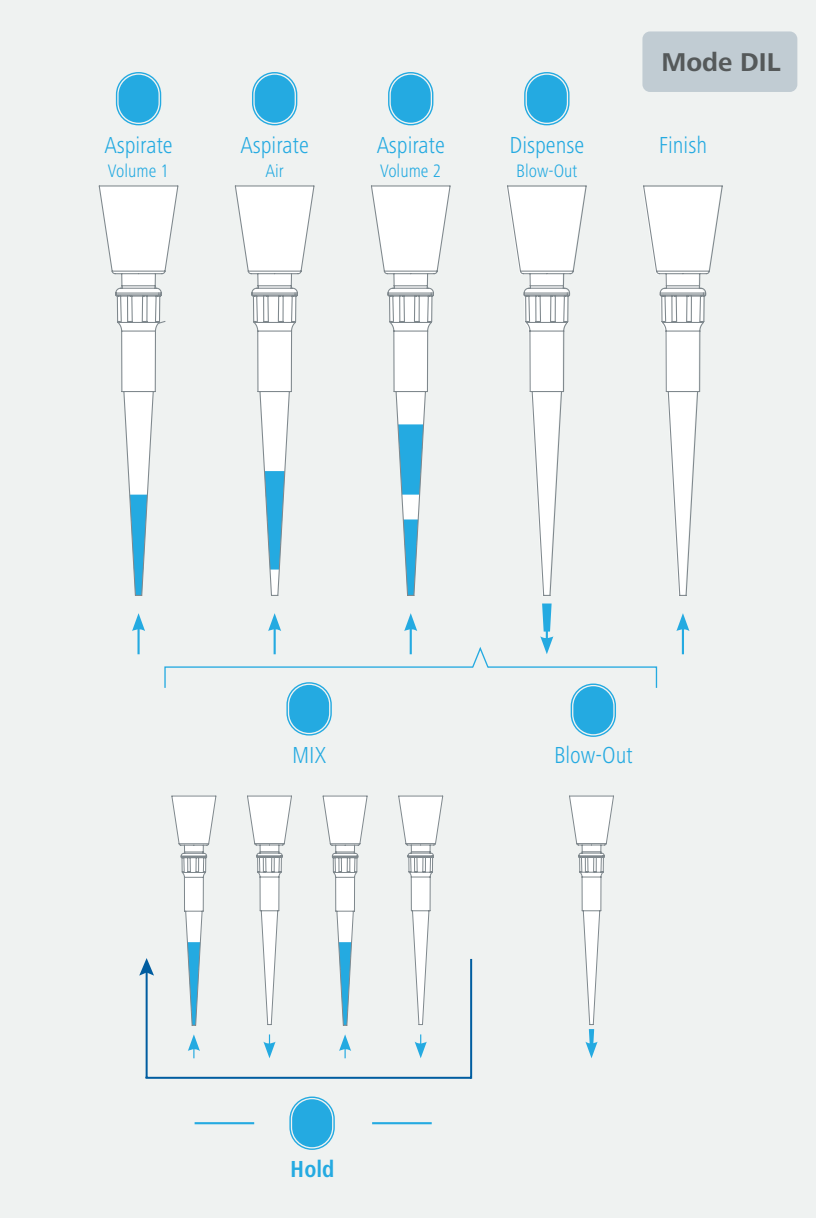
1. Press the pipetting button to fill the pipette tip with liquid.
2. Press the pipetting button to discard the pre-out volume.
3. Press the pipetting button to dispense the first volume.
4. Press the pipetting button to dispense the second volume.

...

5. Press the pipette button to dispense the last volume, or hold down the pipette button during dispensing to repeat this mode. You can repeat this step as often as you like. Press the pipette button again to finally dispense the last volume.
6. Double click (and hold*) the pipetting button to blow out the residual volume.

Mode DIL (Dilute)

Make a dilution from two liquids



Implementation: When the mixing function is deactivated (MIX = 0)

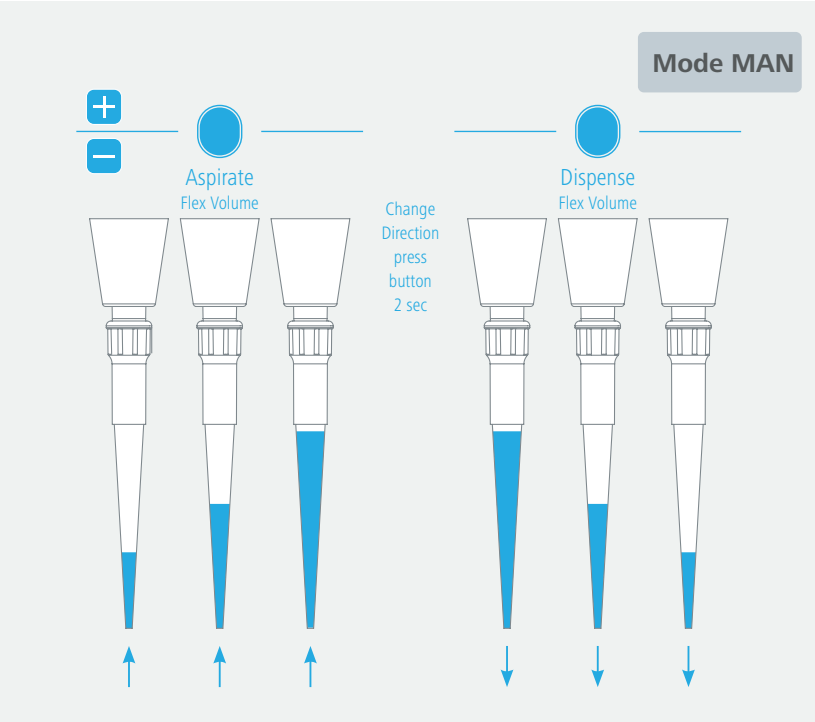
1. Press the pipetting button to fill the pipette tip with the first liquid.
2. Press the pipette button to aspirate the air cushion.
3. Press the pipette button to aspirate the second liquid.
4. Press (and hold*) the pipetting button to dispense both liquids with additional blowout.

Implementation: When the mixing function is activated (MIX > 0)

1. Press the pipetting button to fill the pipette tip with the first liquid.
2. Press the pipette button to aspirate the air cushion.
3. Press the pipette button to aspirate the second liquid.
4. Press and hold the pipetting button to dispense both liquids into an empty vessel or the third liquid, and then the liquids will be continuously aspirated and dispensed with the set mixing volume until you release the button.
5. Double click (and hold*) the pipetting button to blow out the residual volume.

Mode MAN (Manual)

Aspirate and dispense flexible volume

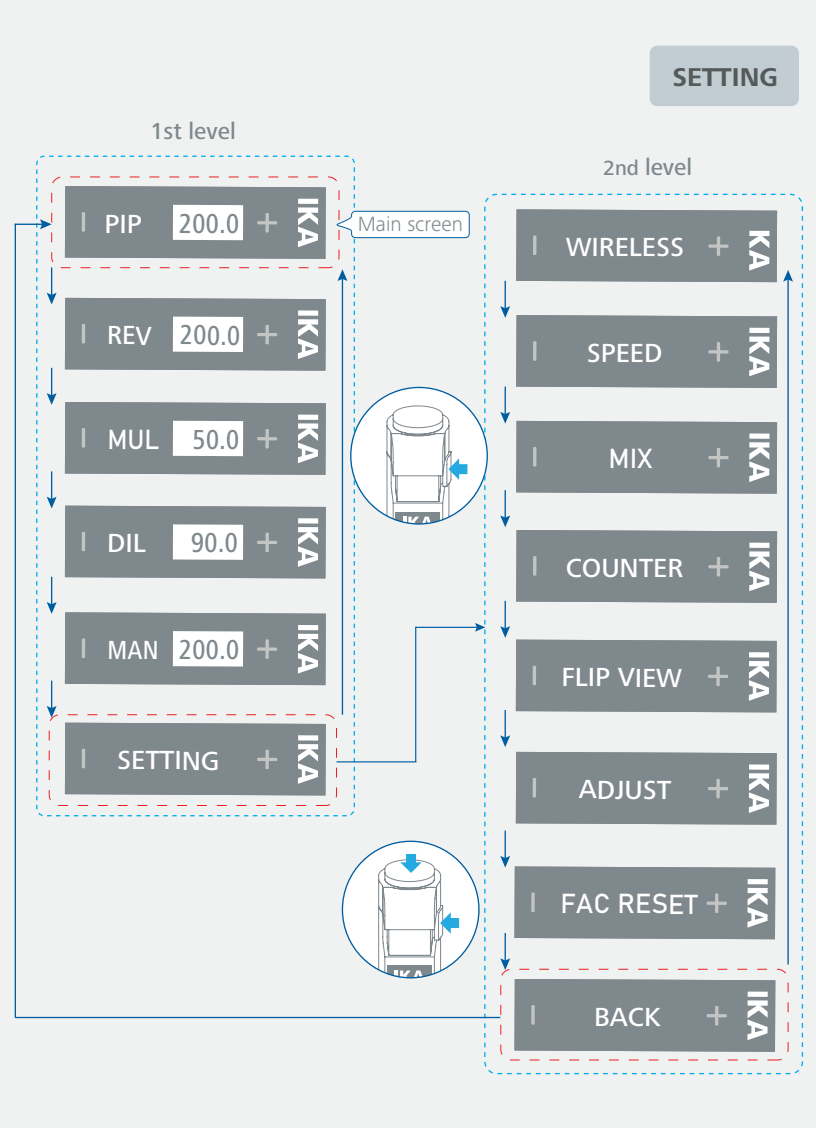


Implementation:

1. Press and hold the pipetting button to fill the pipette tip with liquid.
   Liquid will be continuously aspirated until you release the button or the set maximum volume is reached.
2. To change from aspirating to dispensing, press the "-" button for two seconds.
   If you now press the pipetting button, liquid will be dispensed continuously until you release the button or the starting position is reached.
3. To blowout, double click (and hold*) the pipetting button when it is in the starting position.
4. To switch back from dispensing to aspirating, press the "+" button for two seconds.

/// SETTING

› In the first-level menu, select the “SETTING” menu option using the multifunction button, then press the pipetting button to confirm. This will take you to the second-level menu, where you can adjust the general settings.
› Press the multifunction button to switch between the different second-level menus.



WIRELESS (Wireless connections)

Select the "WIRELESS" menu option and press the pipetting button to confirm.
The options ("APP", "WiCo"and "BACK") will then appear and can be switched by the multifunction button.

APP
This menu option allows the user to connect the pipette to the PEN APP.
- Switch to the "APP" menu option.
- Press the pipetting button to confirm and start the connection process.
- On a terminal device, start the PEN APP and press the "+" symbol. The distance between the pipette and the mobile device should be less than 3 meters.
- The pipette screen will display "OK", followed by the symbol "▯" for three seconds if the connection with one pipette is successful. If the connection is unsuccessful, the pipette screen will display "☒" for three seconds.
- Once the connection has been successfully established, you can operate the pipette via the PEN APP.

WiCo
This menu option allows the user to connect the pipette to the PEN.WiCo (remote control).
- Activate the connection process by briefly pressing the button on the PEN.WiCo. The status LED will now blink blue slowly.
  The distance between the IKA PEN and the PEN.WiCo should be less than 3 meters.
- Select the “WiCo” option in the pipette menu.
- Once you have confirmed “WiCo” by pressing the button, the connection process will start.
- During the connection process, “SCANNING” is displayed on the device display. Once the connection has been successfully established, the symbol "◠" is displayed. If the connection could not be established successfully, “TIMEOUT” is displayed on the device display.
- When connected, the status LED on the PEN.WiCo lights up blue continuously. In this state, the button on the PEN.WiCo has the same function as the pipette button on the pipette.

Note:
If the status LED on the PEN.WiCo remains lit red for 30 seconds after pressing the button, the PEN.WiCo battery must first be charged.

CUT (Disconnect, visible only when connected wirelessly)
This menu item allows the user to disconnect the pipette from the PEN APP or PEN.WiCo.
- Select the “CUT” option in the pipette menu and confirm by pressing the pipette button.
- The symbol "☒" will be displayed, indicating that there is no wireless connection or signal.

SPEED

This menu option allows the user to set different speed levels for aspiration and dispensing of the nominal volume for all pipetting modes.
These speeds determine the duration of the pipetting process.
Please note that the actual duration may vary depending on viscosity, ambient pressure, and temperature.

- Select the “SPEED” option in the pipette menu and start the settings by pressing the pipette button.
- IN: Aspiration speed
  Press the “+” or “-” button to set the speed. Confirm your selection by pressing the pipette button.
- OUT: Dispensing speed
  Press the “+” or “-” button to set the speed. Confirm your selection by pressing the pipette button.

Note:
The following table illustrates the minimum duration (in seconds) required for the aspiration of the nominal volume at varying speed levels in PIP mode.

Nominal volume		Speed (IN / OUT): S1 (slow) ... S9 (fast)								
		S1	S2	S3	S4	S5	S6	S7	S8	S9
10 µl	Duration (s)	11	9	7	5	3	2	1.5	1	0.5
100 µl	Duration (s)	12	10	8	6	4	2	1.5	1	0.6
200 µl	Duration (s)	12	10	8	6	4	2	1.5	1	0.6

MIX

This menu option allows the user to use the mixing function in the pipetting mode PIP or DIL.

- Select the “MIX” option from the pipette menu and confirm by pressing the pipette button.
- Press the "+" or "-" button to set a target volume and press the pipetting button to confirm the setting.

Note:
To deactivate the mixing function, press and hold the "-" button until "OFF" appears, then press the pipetting button to confirm.

COUNTER (only for PIP mode)

This menu option allows the user to count the number of times a liquid is dispensed.

- Select the “COUNTER” option in the pipette menu and start the settings by pressing the pipette button.
- Press the "+" or "-" button to toggle between the options of "ON", "OFF" and "RES" and press the pipetting button to confirm the selection.
  ON: Counting function active. The number of dispensing operations is shown on the device display after each pipetting operation.
  OFF: Counting function not active.
  RES: Reset the counter to 0.

FLIP VIEW (Rotate screen view)

This menu option allows the user to switch the display view between right-handed and left-handed modes.

- Select the “FLIP VIEW” option from the pipette menu and confirm by pressing the pipette button.
- The display view changes immediately.

ADJUST (Adjust)

The user can make adjustments in this menu option. You can choose between a 1-point, 2-point, or 3-point adjustment.

- Select the “ADJUST” option in the pipette menu and start the settings by pressing the pipette button.
- Press the multifunction button to show the options of “P1”, “P2” and “P3”. Confirm your selection by pressing the pipette button.
  P1: Adjust the pipette at one point, with selectable desired adjustment volume.
  P2: Adjust the pipette at 10% and 100% of the nominal volume.
  P3: Adjust the pipette at 10%, 50%, and 100% of the nominal volume.

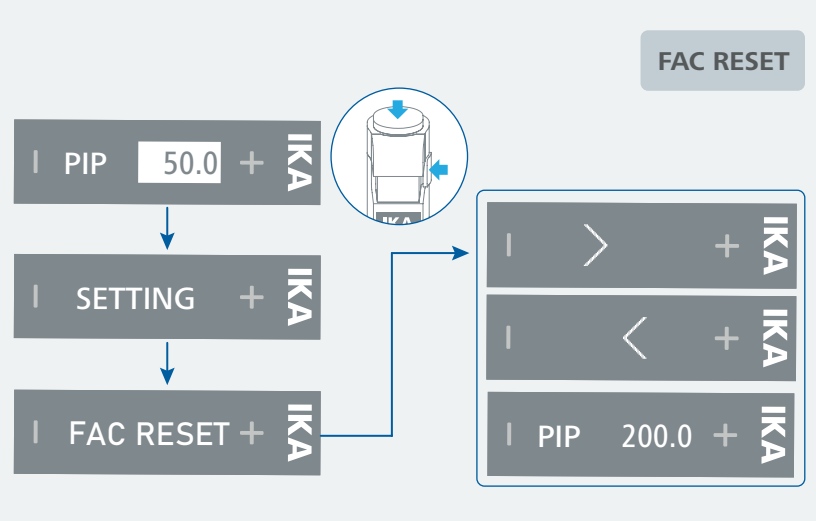
Note:
Once you've selected one of the 3 options, the other two options will no longer be displayed. The symbol "  " will always appear on the screen during operation.

ADJ RESET
This menu option allows the user to reset the adjustments made.

FAC RESET

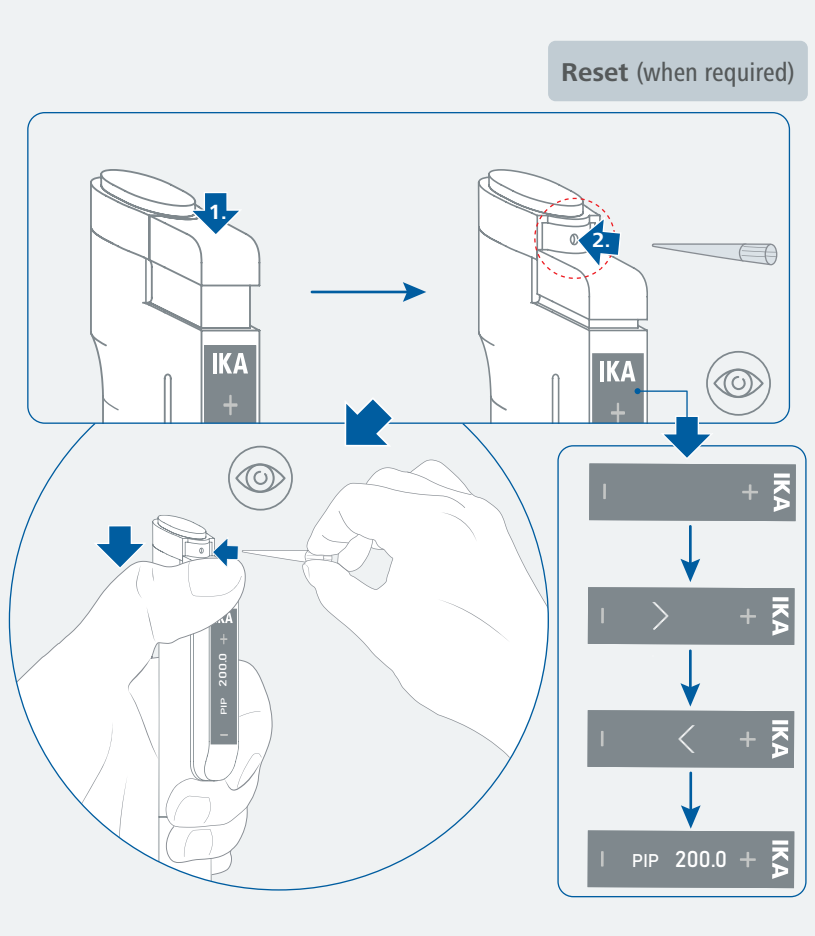
In the “FAC RESET” menu option, all changed menu settings can be reset to the factory settings.

- Select the “FAC RESET” option in the pipette menu and confirm by pressing the pipette button.
- The pipette resets after pressing the pipette button.

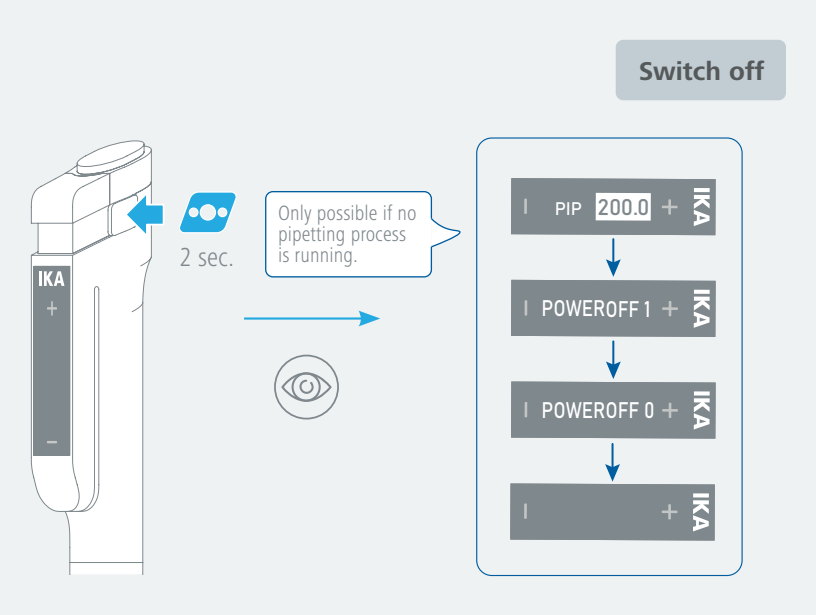


/// Reset

› If the pipette stops working, reset the pipette to its initial state by following these steps:
1. Press the pipette ejector button to expose the reset opening of the pipette.
2. Insert the thin end of a pipette tip into the reset opening and press briefly and lightly against the noticeable resistance.



/// Switching off



Interfaces and outputs

The device software can be updated with a PC via the USB port.

Notice!
Please comply with the system requirements together with the operating instructions and help section included with the software.

/// USB interface

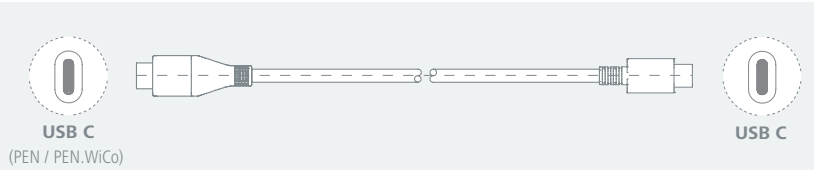
The Universal Serial Bus (USB) is a serial bus for connecting the device to the PC. Equipped with USB devices can be connected to a PC during operation (hot plugging). Connected devices and their properties are automatically recognized.

/// USB device drivers

Connect the IKA device through the USB data cable to the PC. The data communication is via a virtual COM port.
From Windows 10 and onwards the standard Windows USB driver is automatically loaded and a COM port number is assigned (find details in Windows Device Manager: "USB Serial Port (COMxx)"). If you have problems with USB communication, first ask your IT system administrator whether access to the USB interface is restricted for data security reasons.

/// Connections between device and external devices

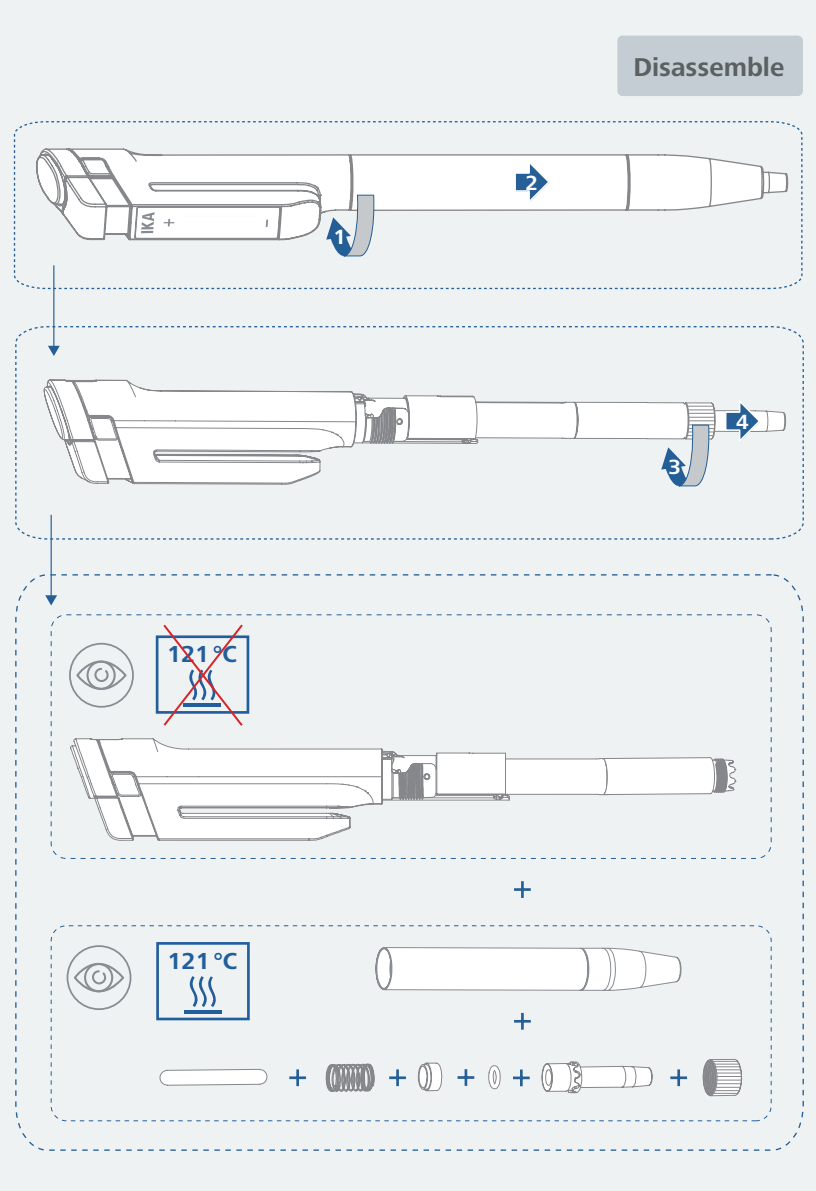
USB-C to USB-C cable:
This cable is required to connect the USB port to a PC and to charge the battery.

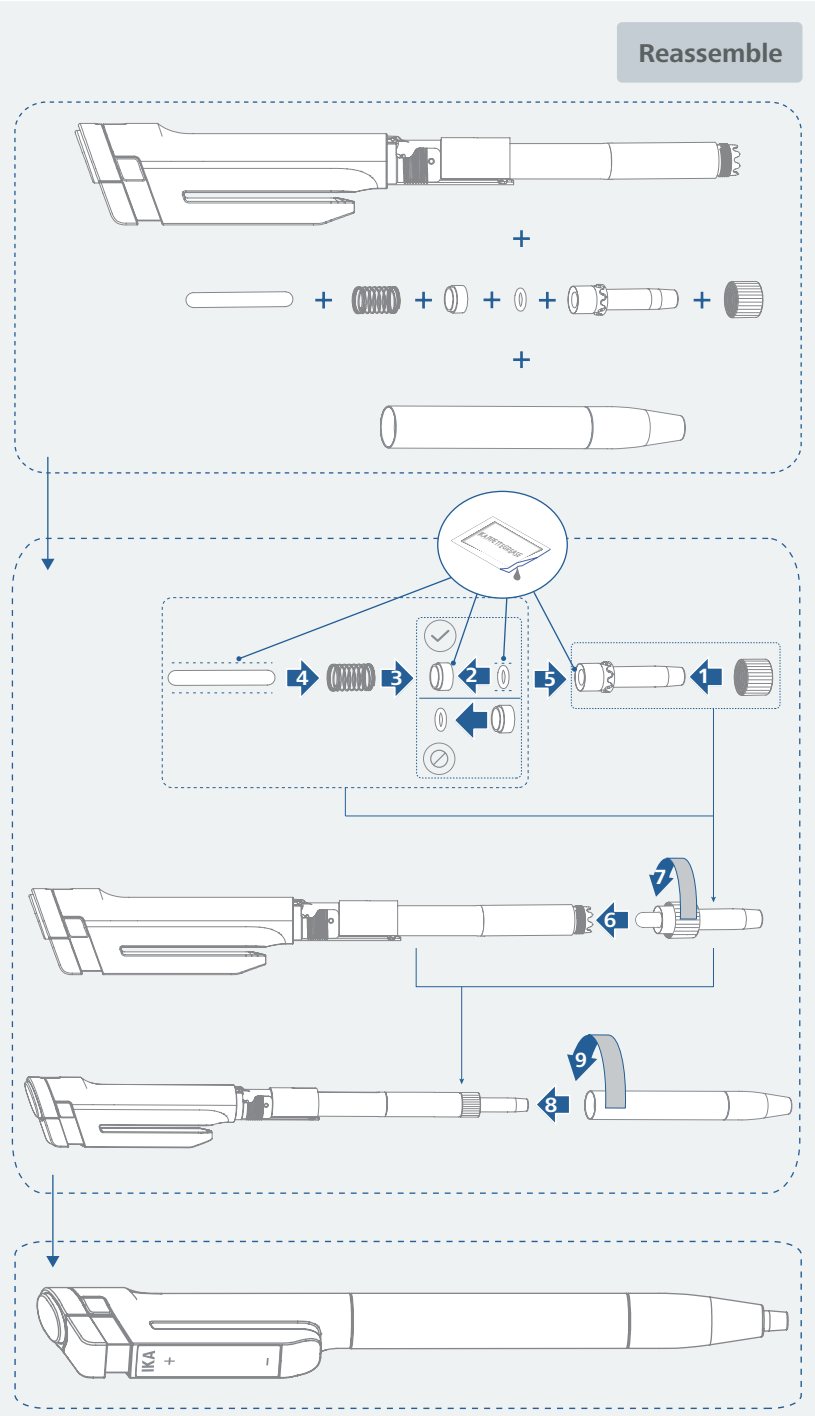


Maintenance and cleaning

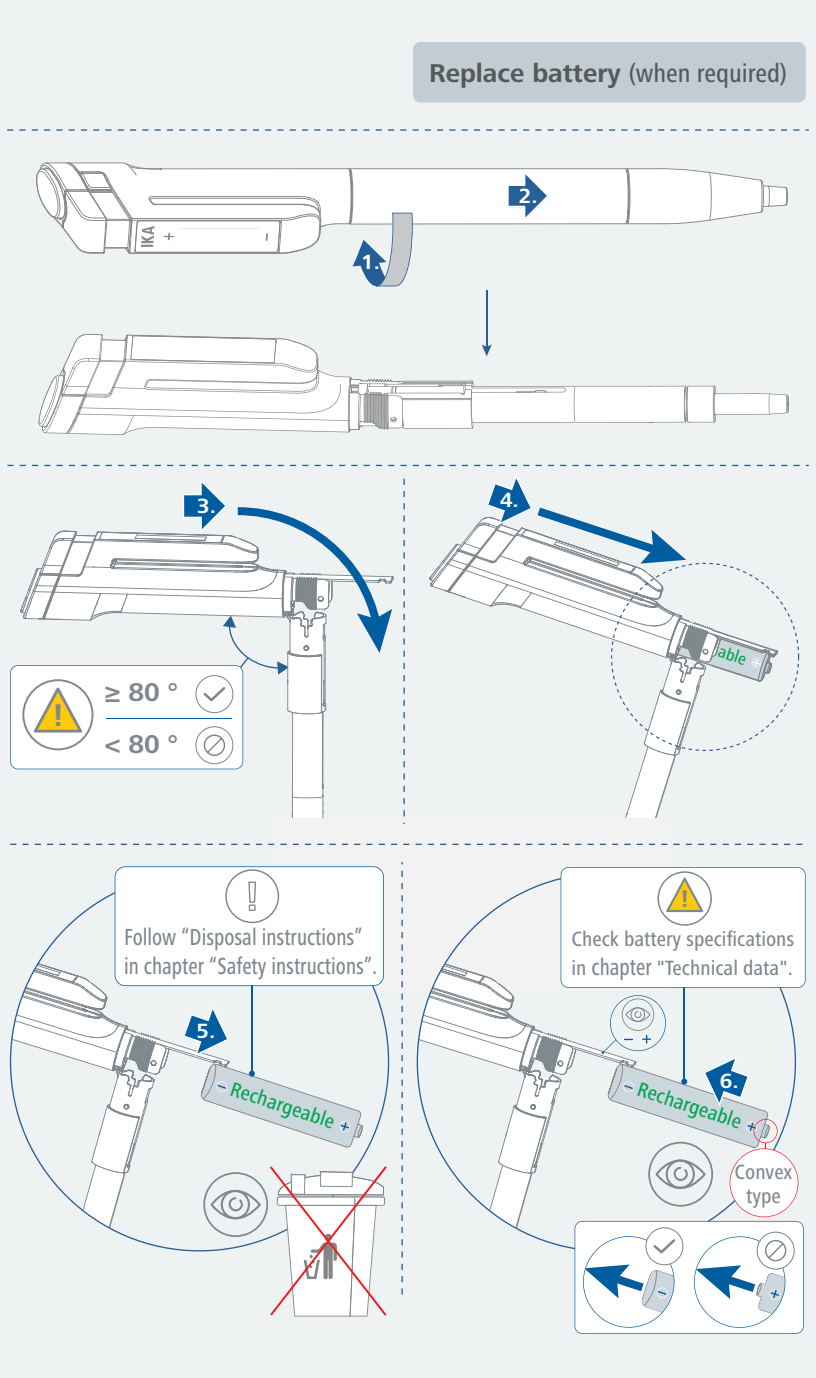
› A pipette should be cleaned, greased and checked (calibrated), at regular intervals (IKA recommendation every 4 months or immediately in case of contamination).
› Take note that only IKA PIPETTE grease should be used to grease the pipettes. Other types of grease may cause irreversible damage and affect the functionality of the pipette.

/// Disassemble & reassemble





/// Replacing battery



/// Materials used in pipette parts

External parts
- Aluminum (coated)
- PEI
- Stainless steel (DLC coating)

External and internal parts of pipette lower part
- Aluminum (coated)
- PEI
- Stainless steel (DLC coating)
- Stainless steel (spring steel)
- FKM
- PPS

/// Cleaning

Caution!
› Wear protective gloves during cleaning the devices.

› Disassemble the lower part of the pipette as shown. (see "Disassemble & reassemble")
› Clean the parts with surfactant-containing water (soap solution) or isopropanol (70%).
› Rinse the parts with distilled water and let them dry.
› Lubricate the piston and cylinder.
› Before using another than the recommended method for cleaning or decontamination, the user must ascertain with IKA that this method does not destroy the device.

/// Sterilizing

Notice!
› The pipette can be sterilized using UV light (254 nm).

/// Autoclaving

Notice!
› Only the lower part of the pipette is autoclavable: 121 °C; 20 min; 1 bar overpressure. (see "Disassemble & reassemble")

/// Calibration

› All pipettes are supplied by IKA with a calibration certificate. IKA recommends calibration according to EN ISO 8655 in regular intervals (IKA recommends every 4 months or after every maintenance, cleaning or autoclaving).

/// Storage

› It is recommended to store the pipette in a vertical position when not in use. Placing the pipette on its side can cause liquid to enter the pipette body and cause corrosion. IKA recommends the use of the PEN Stand (accessories).

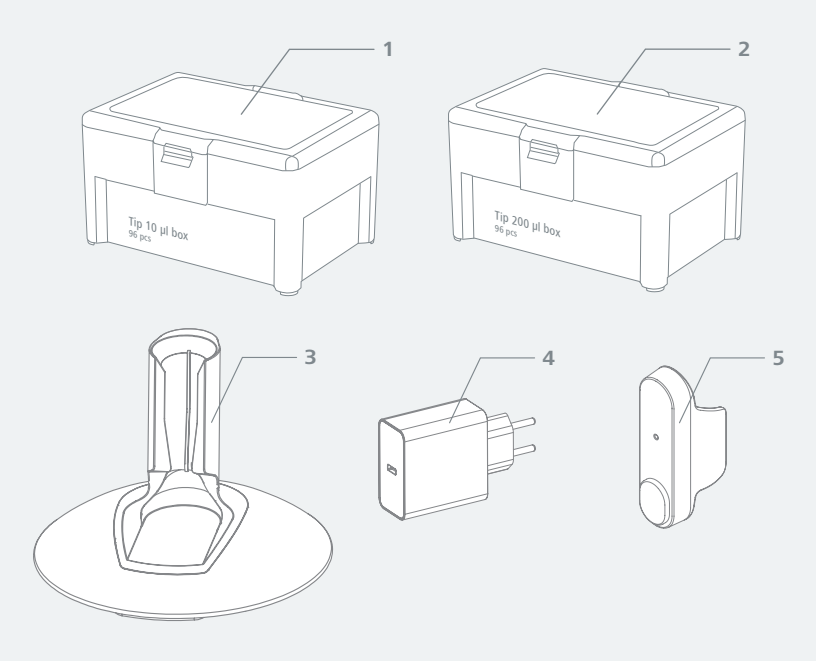
/// Ordering spare parts

› When ordering spare parts, please give:
- device type.
- serial number, lasermarked on the housing.
- position number and description of spare part, see **www.ika.com**.
- software version.

/// Repairs

› Please only send devices in for repair that have been cleaned and are free of materials which might present health hazards.
› For repair, please request the "**Safety Declaration** (**Decontamination Certificate**)" from IKA or use the download printout of it from IKA website at **www.ika.com**.
› If your appliance requires repair, return it in its original packaging. Storage packaging is not sufficient when sending the device - also use appropriate transport packaging.

Accessories



1	IKA Tip 10 µl box	**4**	PEN USB C Power-Supply
2	IKA Tip 200 µl box	**5**	PEN.WiCo
3	PEN Stand		

For further accessiores see **www.ika.com**.

Troubleshooting

Effect | Causes | Solutions

E 24

Causes	› motor initialization failed
Solutions	› confirm with pipetting button, the pipette will perform a homing routine › clean and grease piston and sealing, then restart the pipette

Dispensed volume outside the specifications

Causes	› unsuitable pipette tip › the characteristics of the liquid (vapour pressure / density / viscosity) differ greatly from those of water › lower part of the pipette is loose › lower part of the pipette is dirty
Solutions	› use pipette tips suitable for the pipette size › try reverse pipetting mode with highly viscous or foaming liquids, or calibrate and adjust the pipette according to ISO 8655 › disassemble the lower part of the pipette, then tighten the parts › clean the lower part of the pipette

Leakage | Dispensed volume too small

Causes	› the pipette tip does not sit correctly on the pipette tip cone › unsuitable pipette tip › tip cone soiled or damaged › piston and sealing soiled or damaged
Solutions	› attach the pipette tip correctly › use pipette tips suitable for the pipette size › clean or replace tip cone › clean, grease or replace piston and sealing

IKA PEN APP or PEN.WiCo does not function correctly

Causes	› not start the "WIRELESS (APP / WiCo)" connection in the menu of the pipette › not start IKA PEN APP or activate PEN.WiCo › no wireless signal, or the signal strength is too weak.
Solutions	› start the "WIRELESS (APP / WiCo)" connection in the menu of the pipette › start IKA PEN APP or activate PEN.WiCo › place PEN.WiCo or the terminal device with IKA PEN APP installed close to the pipette (within 3 meters is recommended)

› If the actions described fails to resolve the fault or another error code is displayed:
- contact the service department.
- send the device for repair, including a short description of the fault.

Technical data

		IKA PEN		
		0.5 – 10 µl	5 – 100 µl	10 – 200 µl
Design	-	Air displacement piston-operated pipette		
Handling	-	electronic		
Volume	-	variable		
Number of channels	-	1		
Colour Code	-	-	-	Yellow
Nominal volume	µl	10	100	200
Volume min.	µl	0.5	5	10
Volume max.	µl	10	100	200
Increments	µl	0.01	0.1	0.2
Accuracy with nominal volume	µl	±0.1	±0.8	±1.2
Accuracy with nominal volume	%	±1	±0.8	±0.6
Precision with nominal volume	µl	±0.04	±0.2	±0.4
Precision with nominal volume	%	±0.4	±0.2	±0.2
Accuracy with 50% of nominal volume	µl	±0.075	±0.5	±1
Accuracy with 50% of nominal volume	%	±1.5	±1	±1
Precision with 50% of nominal volume	µl	±0.04	±0.15	±0.3
Precision with 50% of nominal volume	%	±0.8	±0.13	±0.3
Accuracy with 10% of nominal volume	µl	±0.025	±0.2	±0.5
Accuracy with 10% of nominal volume	%	±2.5	±2	±2.5
Precision with 10% of nominal volume	µl	±0.018	±0.1	±0.14
Precision with 10% of nominal volume	%	±1.8	±1	±0.7
Certificate of confirmity according to ISO 8655	-	yes		
Piston material	-	stainless steel DLC coated		
Dimensions (W x D x H)	mm	15 x 28 x 205		
Weight	kg	0.1		
Permissible ambient temperature	°C	+ 5 ... + 40		
Permissible relative humidity	%	80		
Operation at a terrestrial altitude	m	max. 2000		
Rechargeable battery				
Nominal voltage	V	3.7		
Nominal charging capacity	mAh	350		
Charging time	h	approx. 3		
Working time	h	approx. 8		
Battery type	-	rechargeable lithium ion 10440 convex head, max. length 44.8 mm		

Subject to technical changes!

Warranty

› In accordance with IKA Terms and Conditions of Sale, the warranty period is 24 months. For claims under the warranty please contact your local dealer. You may also send the device direct to our factory, enclosing the delivery invoice and giving reasons for the claim. You will be liable for freight costs.

› The warranty does not cover worn out parts, nor does it apply to faults resulting from improper use, insufficient care or maintenance not carried out in accordance with the instructions in this operating manual.

› Please note that the Battery is not covered under the terms of our warranty.

IKA

designed for scientists

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