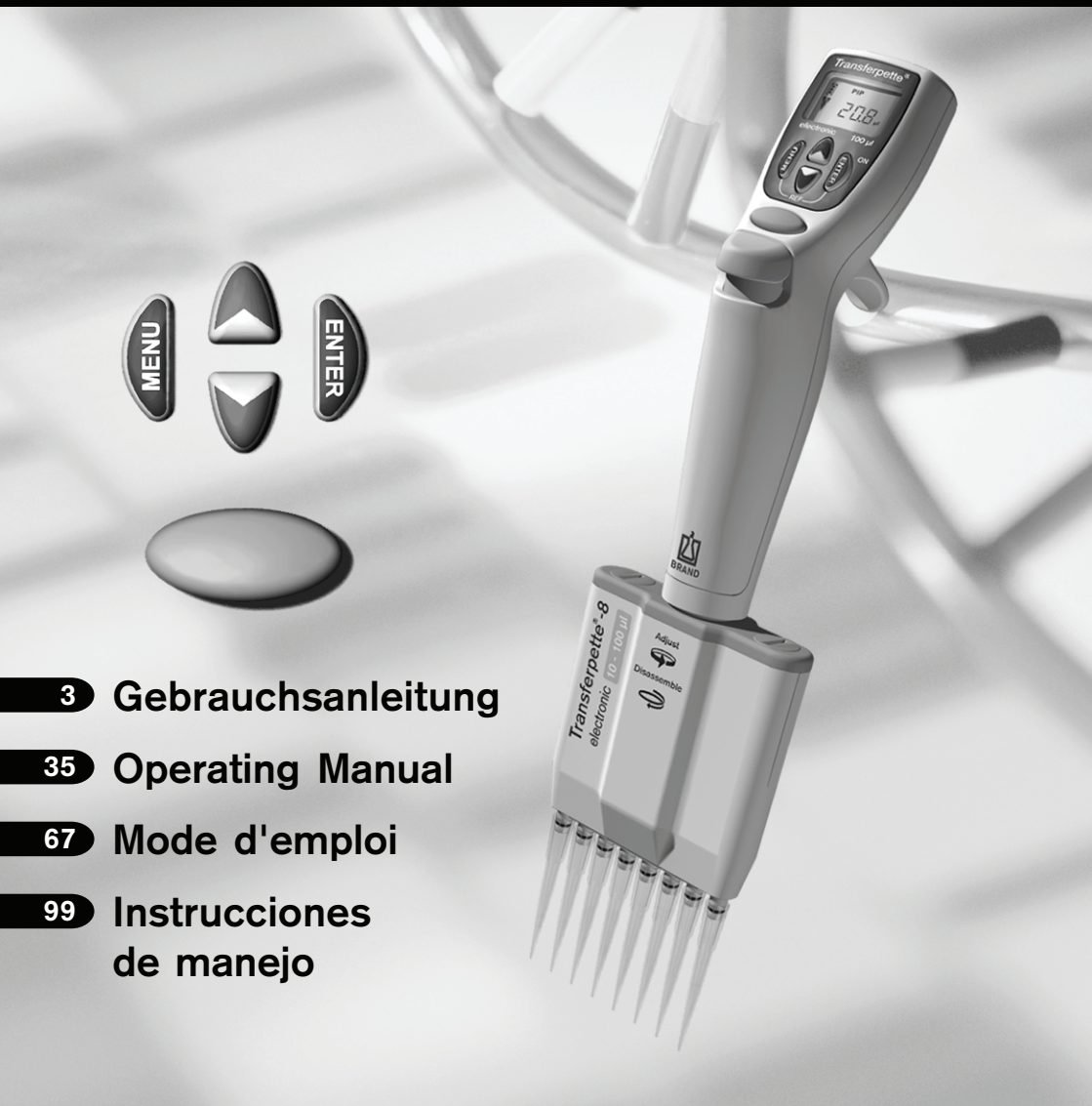
Liquid Handling · Easy Handling!

BRAND

Transferpette® -8/-12 electronic

FIRST CLASS · BRAND



3 Gebrauchsanleitung

35 Operating Manual

67 Mode d'emploi

99 Instrucciones de manejo

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Safety Instructions

This instrument may sometimes be used with hazardous materials, operations, and equipment. It is beyond the scope of this manual to address all of the safety problems associated with its use in such applications. It is the responsibility of the user of this pipette to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

⚠ Please read the following carefully!

1. Every user must read and understand this operating manual prior to using the pipette and observe these instructions during use.
2. Follow general instructions for hazard prevention and safety instructions; e.g. wear protective clothing, goggles and gloves. When pipetting infectious or other hazardous samples, all appropriate regulations and precautions must be followed.
3. Only use the instrument for pipetting only liquids that conform to the specifications defined in the operating exclusions and limitations (see page 35).
4. Observe all safety precautions provided by reagent manufacturers.
5. Only pipette liquids that do not react with polypropylene (PP) and polycarbonate-polybutyleneterephthalate (PC/PBT).
6. Never use force on the instrument!
7. Operate only with tips attached (see page 42). Do not lay the instrument down horizontally when the tips are attached.
8. Avoid touching the tip orifices when working with hazardous samples.
9. Always work in a way which neither endangers the user nor any other person. When emptying the tips, the sample must never spray or splatter into the surrounding area. Discharge into suitable collecting vessel.
10. Only press the pipetting key after ensuring that discharging the sample will not result in any danger. Only dispense liquids into a suitable collecting vessel.
11. Do not use the instrument in potentially explosive environments or with explosive samples.
12. Only use AC adapter indoors. Protect from moisture.
13. To charge the NiMH battery pack, use only the original AC adapter.
14. Do not replace the original battery pack with other battery packs, or cells. Use only original manufacturer's replacement battery packs.
15. Confirm battery pack is completely discharged prior to disposal. Observe relevant disposal regulations for your facility.
16. Use only original manufacturer's accessories and spare parts. Do not modify the instrument in any way, other than specifically described by the manufacturer.
17. In case of malfunction, immediately stop pipetting. Consult the "Troubleshooting" section of this manual, and contact the manufacturer if needed.

Warning! Improper use of the instrument or the batteries (short circuit, mechanical damage, overheating, incorrect AC adapter, etc.) can lead to battery explosion.

Functions and Limitations of Use

The Transferpette®-8/-12 electronic is a microprocessor-controlled, battery-operated piston-stroke multichannel pipette which uses the air-displacement principle for the pipetting of aqueous solutions with an average density and viscosity.

When the instrument is used properly, the sample only comes into contact with the tips and not with the Transferpette®-8/-12 electronic.

Limitations of use

The Transferpette®-8/-12 electronic is intended for the pipetting of liquids within the following limitations:

- Temperature of both the instrument and solution should be between 15 °C to 40 °C (59 °F to 104 °F) for the instrument and the reagent. Consult the manufacturer for use in temperatures outside of this range.
- Vapor pressure up to 500 mbar
- Viscosity: 260 mPa s (260 cps)

Operating exclusions

Never use the instrument for pipetting liquids, that react adversely with polypropylene (PP: shaft) or polycarbonate/polybutyleneterephthalate (PC/PBT: handgrip). Avoid reactive vapors due to the danger of corrosion.

Do not use use aggressive cleaning agents (e.g., bleach) to clean the instrument. Distilled water or a mild soap solution is recommended.

The pipetting of highly dense or viscous liquids as well as the pipetting of liquids, which react with polypropylene (PP) or polycarbonate/polybutyleneterephthalate (PC/PBT) is only possible within limitations.

Battery and power supply unit specifications

Battery

Nickel-metal hydride battery,

3 cylindrical individual cells with size AAA,

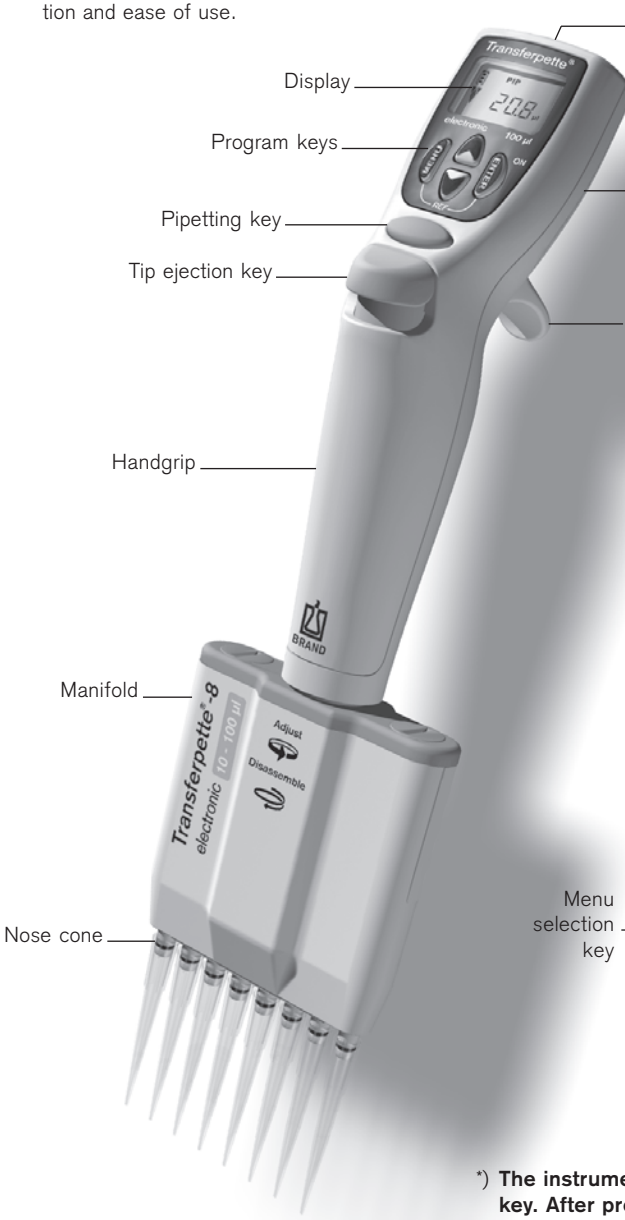
3.6 V, 700 mAh

Power supply unit

Output voltage 6.5 V DC, 200 mA

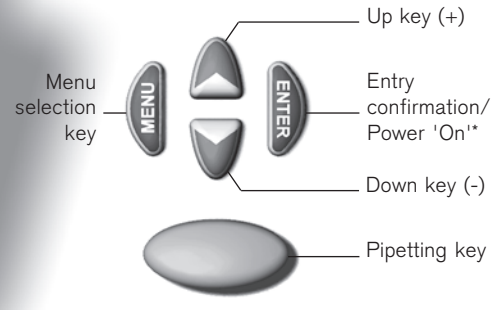
Operating Elements

The Transferpette®-8/-12 electronic is a microprocessor-controlled, battery-operated, piston-stroke multichannel pipette, which has been optimized for ergonomic operation and ease of use.



The Transferpette®-8/-12 electronic rests easily and ergonomically in your hand. The finger rest is height adjustable with a screw, which allows fine-tuning of the hand position for effortless operation of the function buttons.

Key Functions



*) **The instrument is activated by pressing the ENTER key. After pressing the pipetting key next, the instrument is ready for pipetting.**
The Transferpette®-8/-12 electronic shuts off 10 min after the last instrument operation (Auto-Power-Off).

Is everything in the package?

Confirm that your package includes: Transferpette®-8 or -12 electronic pipette, battery, power supply unit with battery charging cable, 1 Tip-Box SL filled, 1 Tip-Rack for refill, 1 instrument stand, 1 reagent reservoir, silicone oil, operating manual and 1 set of V-rings made of Viton®.

Initializing the Transferpette®-8/-12 electronic

1. Insert the battery

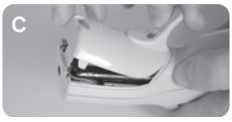
a) Open the cover of the battery compartment.



b) Insure that the plug for the battery is firmly connected to the pipette. Insert the battery.



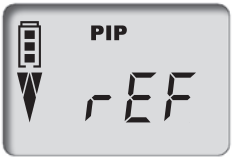
c) Replace the battery compartment.



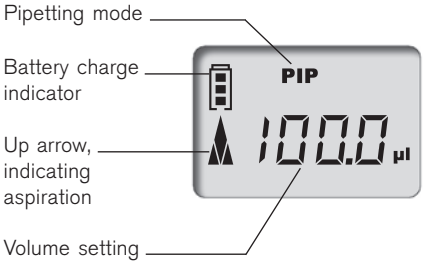
2. Activate the instrument

The Transferpette®-8/-12 electronic automatically requests a reference run directly after the battery is inserted. After the pipetting key is pressed, the reference run is carried out and the instrument is now ready for pipetting.



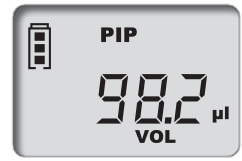
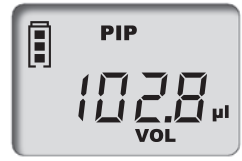
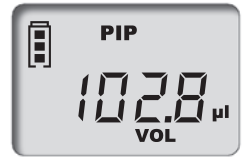


The display shows the standard factory setting (pipetting mode/PIP); and the nominal volume (for example, 100.0 µl). Default aspiration and discharging speeds are at maximum. The adjustment of volume and speed is described on the following pages.



Setting the Volume

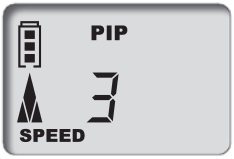
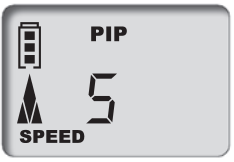
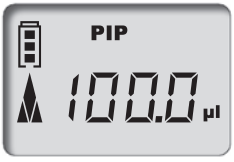
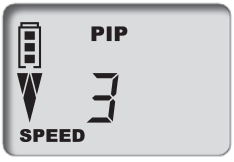
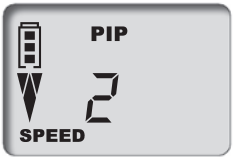
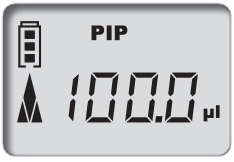
The volume for the Transferpette®-8/-12 electronic is set at the factory to the nominal volume of the instrument and can be changed quickly and easily.

What to do	How to do it	Keys to press	Display readout
1. Activate volume setting	Press one of the arrow keys to activate volume selection. **'VOL'** blinks.		
2. Change the volume			
Reduce volume	Press the down arrow key (-) to reduce the volume. Holding the arrow key down accellerates the rate of change. **'VOL'** continues to blink.		
Increase volume	Press the up arrow key (+) to increase the volume. Holding the arrow key down accellerates the rate of change. **'VOL'** continues to blink.		
3. Confirm volume setting	Press the ENTER key. The display now shows the new volume setting, in this case, 102.8 µl in the PIP mode.		

Important: By pressing the MENU key any procedure can be cancelled! The display then moves to the next setting or back to the initial display (depending on actual selection.)

Setting the Aspiration and Discharging Speed

The aspiration and discharging speeds can be individually adjusted. When the menu is called up, the last speed setting is shown. Five speed levels are available.

What to do	How to do it	Keys to press	Display readout
Setting the aspiration speed			
1. Bring up the menu	Press the MENU key once to bring up the aspiration speed menu. **'Speed'** blinks.		
2. Change the aspiration speed	Press one of the arrow keys (+/-) to select the desired speed (in this case, level 5). **'Speed'** continues to blink.		
3. Confirm speed level	Press the ENTER key. The display returns to the start position for the current pipetting mode (in this case, the standard PIP mode).		
Setting the discharging speed			
1. Bring up the menu	Press the MENU key twice to bring up the discharging speed menu. **'Speed'** blinks.		
2. Change the discharging speed	Press one of the arrow keys (+/-) to select the desired speed (in this case, level 2). **'Speed'** continues to blink.		
3. Confirm speed level	Press the ENTER key. The display returns to the start position for the current pipetting mode (in this case, the standard PIP mode).		

Correct Pipetting

The volume is set at the factory to the nominal volume for the Transferpette®-8/-12 electronic and can be changed quickly and easily. See page 40.

Quick start in the standard pipetting mode

1. Attach the tips

Note: Ensure the tips are seated firmly and seal against the nose cones.

2. Aspirate liquid

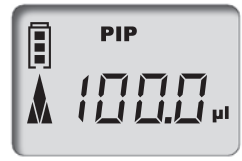


Hold the pipette vertically and immerse the tips 2 to 3 mm into the liquid.

Press the pipetting key to aspirate the liquid into the tips. The arrow in the display points upwards to indicate the aspiration of liquid.

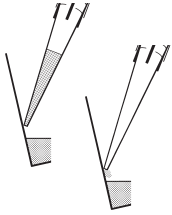


1x



Note: To avoid the intake of air, leave the tips immersed into the liquid for approx. 1 sec.

3. Discharge liquid



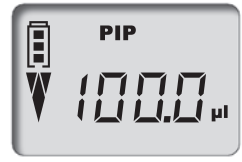
After the liquid has been aspirated, the arrow in the display points downwards to indicate discharging.

Hold the pipette at an angle between 30° and 45°, place the tips against the vessel wall.

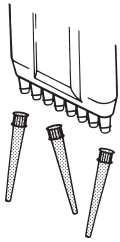
Press the pipetting key again and the liquid is completely discharged including automatic blowout. Afterwards wipe pipette tips against the vessel wall.



1x



4. Eject tips



Hold the pipette shaft over a suitable disposal container and press the tip ejection key.



The Pipetting Programs

Page

1. **Normal Pipetting**

PIP Mode ____ 44

Standard program. A previously set volume is aspirated into the pipette tips and then discharged.

2. **Mixing of Samples**

PIPmix Mode ____ 46

Program for mixing liquids. The sample is repeatedly aspirated and discharged.

3. **Reverse Pipetting**

revPIP Mode ____ 48

Program especially for pipetting liquids with a high viscosity or vapor pressure, or that tend to foam.

4. **Pipetting for Electrophoresis**

GEL Mode ____ 50

Program for loading electrophoresis gels. A predefined sample volume is aspirated at high, adjustable speed and then slowly discharged.

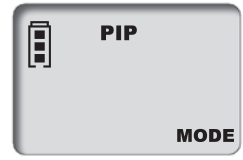
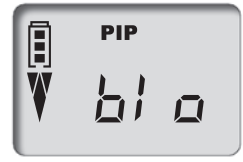
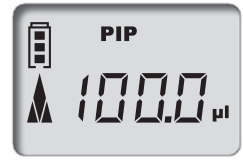
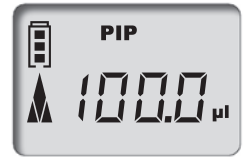
5. **Dispensing**

DISP Mode ____ 52

Program for dispensing liquids. An aspirated volume is dispensed repeatedly in defined steps.

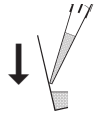
PIP Mode

The standard program – a previously set volume is aspirated and then discharged.
Volume and speed adjustments are described on pages 40 and 41.

What to do	How to do it	Keys to press	Display readout
1. Bring up the menu	Press the MENU key three times to bring up the mode selection menu. **'Mode'** blinks.		
2. Select PIP mode	Use one of the arrow keys to scroll through the modes until **'PIP'** appears. **'Mode'** continues to blink.		
3. Confirm PIP mode	Press the ENTER key. The display now shows **'blo'** for blow-out.		
4. Prepare for pipetting	Press the pipetting key once to move the pistons into the start position. The arrow in the display points upwards (aspiration).		
5. Aspirate liquid 	Press the pipetting key once to aspirate the liquid.		

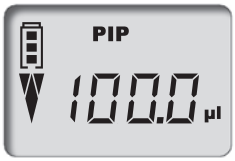
What to do	How to do it	Keys to press	Display readout

6. **Discharge liquid**



Press the pipetting key once to discharge the liquid. The arrow in the display points downwards (discharge).

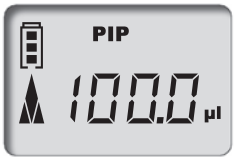




7. **Start blow-out?**

No action required! When pipetting in the PIP mode the **blow-out function is performed automatically.**





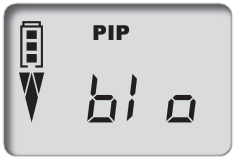
Start blow-out manually

The blow-out function can, if necessary, be initiated manually at any time.

1. **Bring up the blow-out function**

Press the ENTER key. The display shows **'blo'** for blow-out.

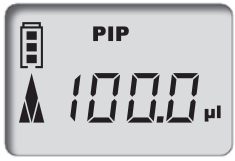




2. **Start blow-out**

Press the pipetting key once to initiate the blow-out process. The display moves back to the start position of the selected pipetting mode.



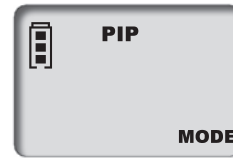
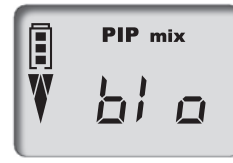


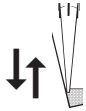
Note:

To accomplish the blow-out, the pistons move to the lowest position. The user must be certain that any residual liquid is discharged safely.
If the pipetting key is pressed and held, the pistons will be maintained at their lowest position to avert an accidental aspiration of liquid. When the key is released, the pistons return to the start position.

PIPmix Mode

Program for mixing of liquids. The sample is repeatedly aspirated and discharged.
Volume and speed adjustments are described on pages 40 and 41.

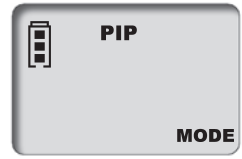
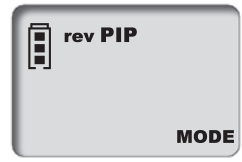
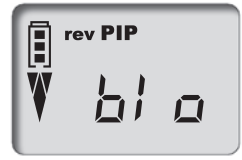
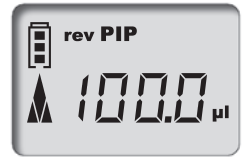
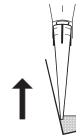
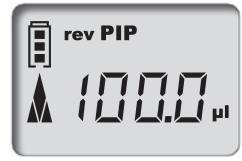
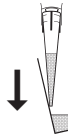
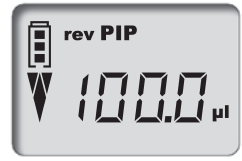
What to do	How to do it	Keys to press	Display readout
1. Bring up the menu	Press the MENU key three times to bring up the mode selection menu. **'Mode'** blinks.		
2. Select PIPmix mode	Scroll through the modes using the arrow keys until **'PIPmix'** appears. **'Mode'** continues to blink.		
3. Confirm PIPmix mode	Press the ENTER key. The Display now shows **'blo'** for blow-out.		
4. Prepare for pipetting	Press the pipetting key once to move the pistons into the start position. The arrow in the display points upwards (aspiration).		
5. Aspirate liquid 	Press the pipetting key once to aspirate the liquid.		

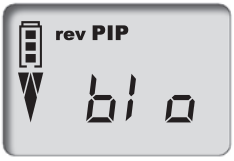
What to do	How to do it	Keys to press	Display readout
6. Discharge liquid in the PIPmix mode 	Press and hold the pipetting key and the liquid is alternately aspirated and discharged. The display shows the up arrow for aspiration and the down arrow for discharging and the number of cycles.	 **press and hold**	
7. End pipetting	Press the pipetting key once and the liquid is discharged and the blow-out function initiated. After the discharge of the residual liquid (blow-out), the display moves back to the start position.	 **1x**	

Note: The display shows a maximum of 19 cycles.

revPIP Mode

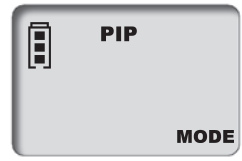
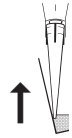
Program for pipetting of liquids with high viscosity, vapor pressure or that tend to foam.
Volume and speed adjustments are described on pages 40 and 41.

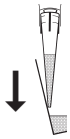
What to do	How to do it	Keys to press	Display readout
1. Bring up the menu	Press the MENU key three times to bring up the mode selection menu. **'Mode'** blinks.		
2. Select revPIP mode	Scroll through the modes using the arrow keys until **'revPIP'** appears. **'Mode'** continues to blink.		
3. Confirm revPIP mode	Press the ENTER key. The Display now shows **'blo'** for blow-out.		
4. Prepare for pipetting	Press the pipetting key once to move the pistons into the start position. The arrow in the display points upwards (aspiration).		
5. Aspirate liquid 	Press the pipetting key once. The volume aspirated will be a little bit more than set.		
6. Discharge liquid in the revPIP mode 	To discharge the measured amount of liquid, press the pipetting key once. The arrow in the display points downwards (discharge). Some liquid will remain in the tips.		

What to do	How to do it	Keys to press	Display readout
7. Repeat aspiration of liquid in revPIP mode 	Press the pipetting key again and the set volume is aspirated into the tips. Press the pipetting key again and the volume is discharged again, and so on...		
8. Initiate blow-out	Press the ENTER key after the last pipetting operation. The display shows **'blo'** for blow-out.		
	Press the pipetting key once to initiate the blow-out process. The residual liquid is discharged.		
9. End pipetting	After the residual liquid is discharged (blow-out), the display moves back to the start position.		

Electrophoresis (GEL) Mode

Program for loading electrophoresis gels. A predefined sample volume is aspirated into the pipette tips with high adjustable speed and then slowly discharged.
Volume and speed adjustment is described on pages 40 and 41.

What to do	How to do it	Keys to press	Display readout
1. Bring up the menu	Press the MENU key three times to bring up the mode selection menu. **'Mode'** blinks.		
2. Select GEL mode	Scroll through the modes using the arrow keys until **'GEL'** appears. **'Mode'** continues to blink.		
3. Confirm GEL mode	Press the ENTER key. The Display now shows **'blo'** for blow-out.		
4. Prepare for pipetting	Press the pipetting key once to move the pistons into the start position. The arrow in the display points upwards (aspiration).		
5. Aspirate liquid 	Press the pipetting key once. The set volume is aspirated into the tips.		
	Aspirate a larger volume In order to aspirate a larger volume than was set (up to a max. of 110% of the nominal volume), press and hold the pipetting key until the desired volume has been aspirated. The display shows a rhombus.		

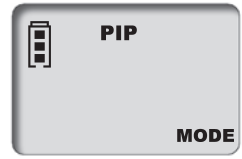
What to do	How to do it	Keys to press	Display readout
6. **Discharge liquid in the GEL mode** 	Press the pipetting key once to discharge the liquid. The rhombus is shown in the display. The liquid is discharged very slowly.		
	Interrupt discharging To interrupt discharging, press the pipetting key again. The display shows the volume discharged prior to interruption.		
7. **Initiate blow-out**	Press the ENTER key after the last pipetting operation. The display shows **'blo'** for blow-out.		
	Press the pipetting key once to initiate the blow-out process. The residual liquid is discharged.		
8. **End pipetting**	After the residual liquid is discharged (blow-out), the display moves back to the start position.		

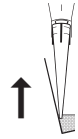
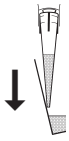
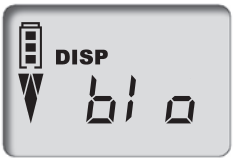
Note:

The GEL mode operates using a very slow discharge speed to prevent swirling of the samples. To assure optimal discharging into a gel, this discharge speed is fixed for the GEL mode. This speed is significantly slower than level 1 and cannot be selected individually.

DISP Mode

Program for discharging an aspirated liquid in pre-defined steps.
The volume aspirated will be a little bit more than actually needed.
Speed adjustment is described on page 41.

What to do	How to do it	Keys to press	Display readout
1. Bring up the menu	Press the MENU key three times to bring ap the mode selection menu. **'Mode'** blinks.		
2. Select DISP mode	Scroll through the modes using the arrow keys until **'DISP'** appears. **'Mode'** continues to blink.		
3. Confirm DISP mode	Press the ENTER key. The Display now shows **'blo'** for blow-out.		
4. Prepare for dispensing	Press the pipetting key once to move the pistons into the start position. The arrow in the display points upwards (aspiration).		
5. Set dispensing step volume	Press the arrow keys (+/-) to set the volume. Holding the arrow key down accellerates the rate of change. **'VOL'** blinks.		
6. Confirm dispensing step volume	Press the ENTER key. The display now shows the new volume setting for the dispensing steps and the max. number of steps. **'Steps'** blinks.		

What to do	How to do it	Keys to press	Display readout
7. **Set the number of steps**	Press the arrow keys (+/-) to set the number of steps. **'Steps'** continues to blink.		
8. **Confirm the number of steps**	Press the ENTER key. The display now shows the number of steps that has been set.		
9. **Aspirate liquid** 	Press the pipetting key once to aspirate the liquid.		
10. **Dispense liquid** 	Each time the pipetting key is pressed one dispensing step is performed. The arrow in the display points downwards (discharge). The display shows the number of dispensing steps left.		
11. **Initiate blow-out**	Press the ENTER key after the last dispensing step. The display shows **'blo'** for blow-out. Press the pipetting key next once to initiate the blow-out process (see also p. 49).		
12. **End dispensing**	After the residual liquid is discharged (blow-out), the display moves back to the start position.		

Checking the Volume

Depending on use, we recommend inspection of the instrument every 3 to 12 months. The cycle can, however, be adjusted to individual requirements.

The gravimetric testing of the pipette volume is performed according to the following steps and is in accordance with DIN EN ISO 8655, Part 6.

1. Set nominal volume

See page 40 for procedure.

2. Condition the pipette

Condition the pipette before testing by using pipette tips to aspirate and discharge the test liquid (distilled H_2O) five times. After this, discard the pipette tips.

3. Carry out the test

a) Attach new pipette tips and pre-rinse one time with test liquid.

b) Aspirate liquid and pipette it into the weighing vessel.

Note: Each individual channel must be tested separately.

c) Weigh the pipetted quantity with an analytical balance. Please follow the operating manual instructions from the balance manufacturer.

d) Calculate the volume, taking the temperature into account.

e) 3-10 pipettings and weighings per channel in three volume ranges (100 %, 50 %, 10 %) are recommended for statistical analysis.

Calculation (for nominal volume)

x_i = Weighing results
n = Number of weighings

Z = Correction factor
(for example 1.0029 µl/mg at 20 °C, 1013 hPa)

Mean value $\overline{x} = \frac{\Sigma\ x_i}{n}$

Mean volume $\overline{V} = \overline{x} \cdot Z$

Accuracy*

$$\mathbf{A\%} = \frac{\overline{V} - V_0}{V_0} \cdot 100$$

V_0 = Nominal volume

Standard Deviation

$$\mathbf{s} = Z \cdot \sqrt{\frac{\Sigma\ (x_i - \overline{x})^2}{n - 1}}$$

Coefficient of Variation*

$$\mathbf{CV\%} = \frac{100\ s}{\overline{V}}$$

*) = Calculation of accuracy (A %) and variation coefficient (CV %): A % and CV % are calculated according to the formulas for statistical control.

Accuracy Table

Final test values related to the nominal capacity (maximum volume) indicated on the instrument, obtained when instrument and distilled water are equilibrated at ambient temperature (20 °C/68 °F) and with smooth operation. According to DIN EN ISO 8655.



Accuracy tolerances for the Transferpette®-8/-12 electronic

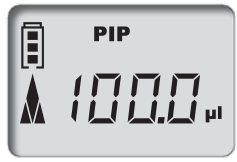
Volume range µl	Volume step µl	A* ≤ ± %	CV** ≤ %	Increment µl	Type of tips µl
30 - 300	300	0.6	0.25	0.2	300
	150	1.2	0.4		
	30	3.0	1.2		
10 - 100	100	0.8	0.25	0.2	200 / 300
	50	1.6	0.4		
	10	4.0	1.5		
2 - 20	20	1.0	0.5	0.02	20
	10	2.0	1.0		
	2	8.0	3.0		

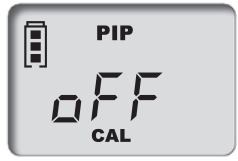
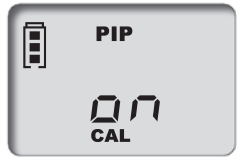
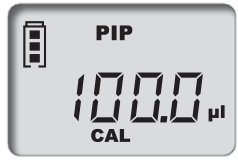
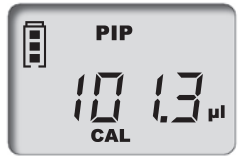
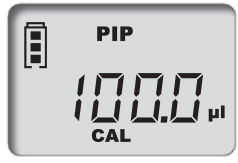
A* = Accuracy, CV* = Coefficient of Variation

The calibration mode 'CAL'

Adjustment

The instrument should be set to either the nominal volume (for example 100 µl for a 100 µl pipette) or a specific test volume, in the standard pipetting mode (PIP). See page 40 for procedures.

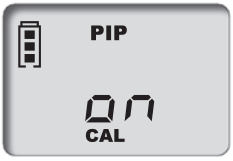
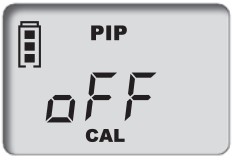
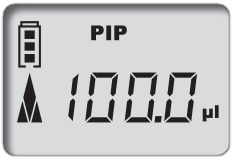


What to do	How to do it	Keys to press	Display readout
1. Bring up the CAL mode	Press and hold the MENU key (> 3 sec) until CAL appears. The display reads 'off'. **'CAL'** blinks.		
2. Activate the CAL mode	Press one of the arrow buttons to activate the CAL mode. The display changes from 'off' to 'on'. **'CAL'** continues to blink.		
3. Confirm CAL mode	Press the ENTER key. The display now shows the set pipetting volume. **'CAL'** blinks.		
4. Set the volume	Use the arrow keys (+/-) to set the volume, which was previously determined and tested. **'CAL'** blinks.		
5. Confirm volume	Press the ENTER key. The display shows the tested and corrected volume. The CAL symbol is continously displayed to confirm that an adjustment has been made.		

Revert to factory default settings

The continually displayed CAL symbol refers to a previously made adjustment.



What to do	How to do it	Keys to press	Display readout
1. Bring up the CAL mode	Press and hold the MENU key (> 3 sec) until CAL appears. The display reads 'on'. **'CAL'** blinks.		
2. Deactivate CAL mode	Press one of the arrow keys to deactivate the CAL mode. The display changes from 'on' to 'off'. **'CAL'** continues to blink.		
3. Revert to factory setting	Press the ENTER key. The CAL symbol disappears. The instrument has now been reverted to factory default setting.		

Important: When the Transferpette®-8/-12 electronic is adjusted, a volume offset is performed, which means that the volume is changed across the entire volume range of the pipette by the same amount. It is recommend that the adjustment be performed at 50% of the nominal volume.

Note: The instrument is permanently adjusted for watery solutions, but it can also be set for solutions with varying density, viscosity and temperature. The Transferpette®-8/-12 electronic can be adjusted in every mode, with the exception of the GEL mode.

Autoclaving

The manifold (M) of the Transferpette®-8/-12 electronic (highlighted in picture) can be autoclaved at 121 °C at a pressure of 2 bar for 20 minutes according to DIN.

Note: The handgrip can not be autoclaved!

1. Eject the pipette tips.
2. Unscrew the manifold from the grip.
3. Autoclave the complete manifold without any further disassembling.
4. Allow the manifold to completely cool and dry.
5. Screw the manifold into the grip.
6. Perform a reference run (rEF).

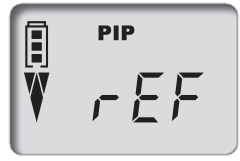
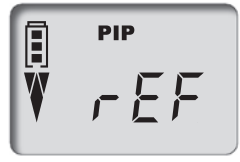
Note: The effectiveness of the autoclaving must be verified by the user.

If the manifold is autoclaved frequently, then the pistons should be lubricate with the supplied silicone oil in order to provide smoother movement.



Reference run (rEF)

A manual reference run must be completed each time the manifold is reattached to the handle. The reference run is needed to assure secure connection of the pistons.

What to do	How to do it	Keys to press	Display readout
1. Bring up rEF mode	Simoultaneously press the MENU and the ENTER key to activate the rEF mode.		
2. Perform the reference run	Press the pipetting key once to start the reference run. A noise can be heard, clearly indicating the function is being performed.		

Note: After the reference run, the display automatically returns to the previous program.

The three main components of the manifold can be easily separated and disassembled for servicing, cleaning or replacing parts. The procedures are illustrated on the following pages.

Note: The changing of the V-rings/O-rings on the individual nose cones is described in detail in the instructions enclosed with the spare part.

The main components of the manifold

A **Piston unit** with piston support bar [I] and pistons inserted in this unit, which can be screwed out individually for cleaning or replacement.

B **Nose cone assembly** with nose cone support bar [II] and central guide rod (Z), which is attached to this, and the nose cones and seals, which can be screwed out individually for cleaning or replacement.

C **Manifold housing,** which is connected to the manifold housing cover [III] of the piston unit with two turn-lock fasteners.

Servicing

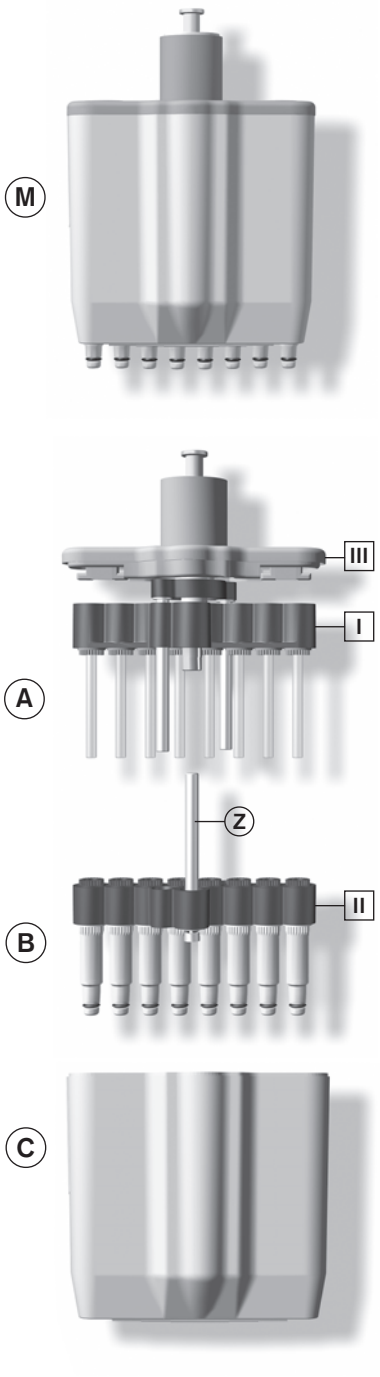
In order to assure proper functioning, the Transferpette® -8/-12 electronic should be serviced and cleaned at regular intervals.

What is to be inspected?

1. Inspect nose cones and seals for damage.
2. Inspect the pistons and seals for contamination and damage.
3. Test the sealing of the instrument. To do this aspirate a sample, and then hold the instrument in a vertical position for about 10 sec. If a drop forms at the tip orifices, see the troubleshooting guide on page 64.

Cleaning Instructions

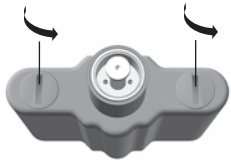
1. Clean single nose cones, pistons and nose cone support bar/piston support bar **(these components only)** with soap solution or isopropyl alcohol, afterwards rince with distilled water.
2. Let these parts dry and cool down completely. Residual moisture in the nose cones may result in a loss of accuracy.
3. Lubricate the piston with a very thin coating of the silicone oil supplied. For the central guide rod (Z) only use the recommended fluorstatic grease!
5. After assembling the device, performe the reference run (rEF).



Disassembling the Manifold

Removing of nose cones and seals for cleaning or replacing

1. Unscrew the manifold from the handle.
2. Turn both closures of the manifold housing cover 90° and slide off the housing.

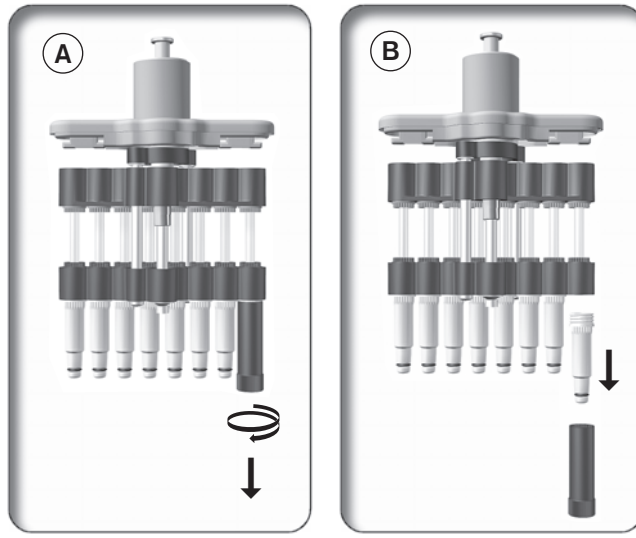


3. Push the mounting tool on the nose cone and unscrew it (Fig. A and B).
4. Push the piston unit down to the bottom. Remove the seal and inspect it and clean or replace if necessary (Fig. C).

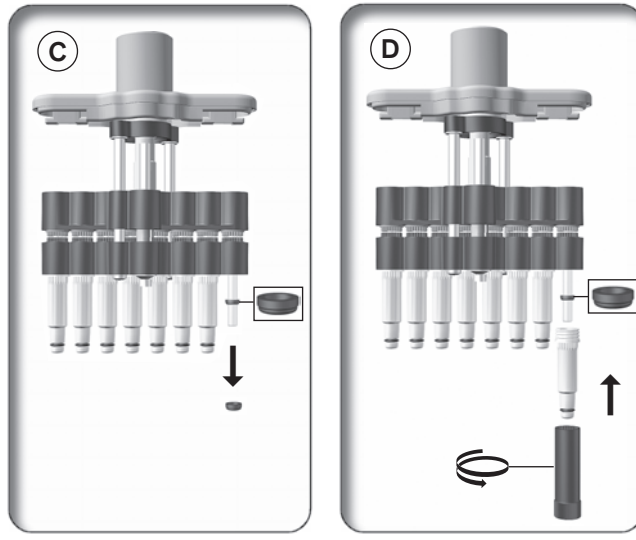
Note:

The seal (Abb. C) will either remain inside the nose cone or will stay on the piston after the nose cone is removed.

6. If required, lubricate the piston lightly with the supplied silicone oil.
7. Push the seal on the piston with its flat side facing upward. Use the mounting tool to mount and tighten the cleaned or new nose cone (Fig. D).
8. Reassemble the manifold and check the instrument for tightness (s. page 59 „Servicing“).



Push the mounting tool on and unscrew the single nose cone



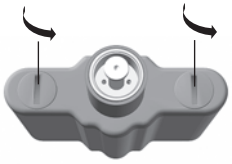
Remove the seal for cleaning or replacement

Insert the seal and screw in the cleaned or new nose cone

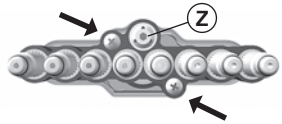
Disassembling the Manifold

Removing of pistons for cleaning or replacing

1. Unscrew the manifold from the handle.
2. Turn both closures of the manifold housing cover 90° and slide off the housing.

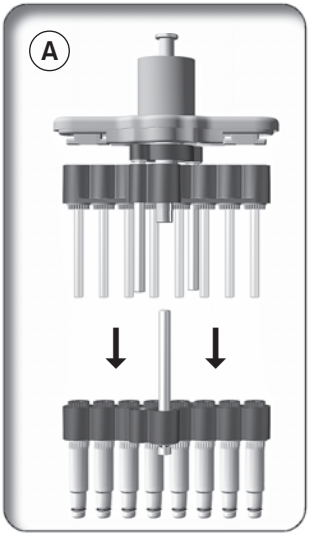


3. Remove both outer Phillips screws on the nose cone assembly.

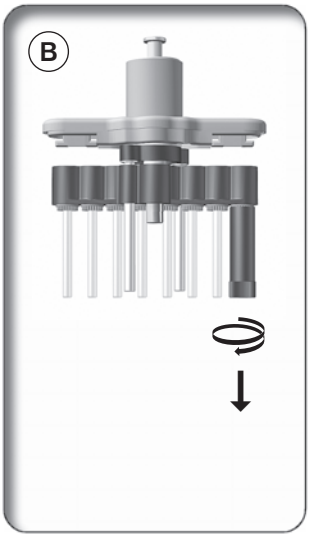


Attention:
Do not loosen the central guide rod (Z)!

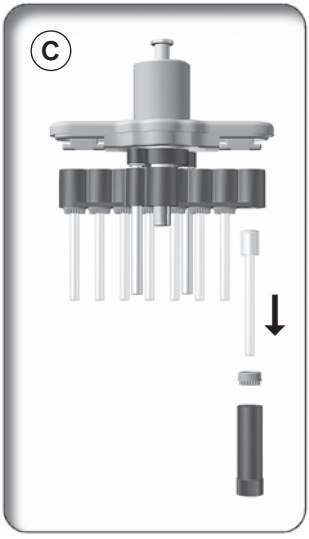
4. Pull the piston and nose cone assembly apart and separate (Fig. A).
5. Place the mounting tool on the piston nut and screw off the piston nut (Fig. B).
6. Remove the piston nut and pull out the piston (Fig. C).
7. Insert the cleaned or new piston and screw on the piston nut and tighten with the mounting tool (Fig. D).
8. Reassemble the manifold and check the instrument for tightness (s. page 59 „Servicing“).



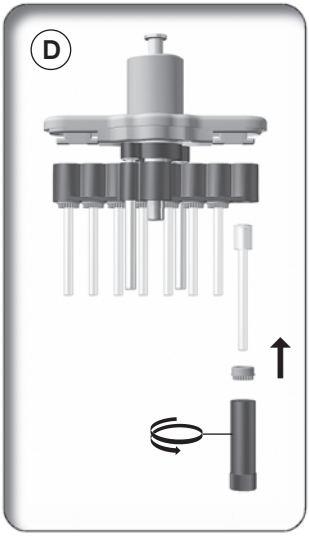
Separate the piston and nose cone assembly



Screw off the piston nut



Remove the piston nut and the piston



Insert the cleaned or new piston and tighten the piston nut

Charging and Replacing the Battery

A fully charged battery allows approx. eight hours of continuous pipetting of liquids with a viscosity and density similar to water.

Important!

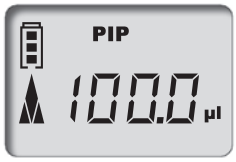
Before charging the battery ensure that the AC adapter is compatible with the line voltage in the laboratory. Do not charge the device in an explosive environment. The battery can only be charged inside the Transferpette®-8/-12 electronic.

Charge the battery

a) Insert the charging cable plug for the AC adapter into the jack at the top of the Transferpette®-8/-12 electronic; charging starts automatically



b) During the charging, the bars for the battery capacity run continually from the bottom to the top. The battery is fully charged, when the bars in the display have stopped moving.



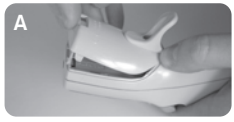
Pipetting during charging?

During charging, you can continue to work with the Transferpette®-8/-12 electronic.
If the battery is fully discharged, it will take a few minutes until a certain minimum charge capacity is available, which is needed to operate the instrument safely.

Note: The last settings are stored in the memory of the instrument. If the battery is fully discharged or the battery is changed, these settings are saved.

Replace the battery

a) Open the battery compartment cover. Remove the battery and pull the plug gently out of the socket.



b) Insert the plug of the new battery into the socket and insert the battery.



c) Put the battery compartment cover in place again and close it.



Remove the battery from the instrument, when it is not to be used for longer periods.

Battery display after inserting a battery

a) After the battery is inserted, the display shows the **full capacity indicator with a blinking frame**, the instrument does not recognize the charging status right now. After 3.5 hours of charging time – safe full charging of the battery – the frame stops blinking.



Note: After inserting a battery always charge 3.5 hours!

Battery regeneration function

(Refresh function)

In order to extend the service life and to optimize performance of the battery, the Transferpette®-8/-12 electronic has a regeneration function (refresh function). This program provides a controlled full discharge and recharging of the battery. To optimize the battery performance, this refresh function should be used periodically.

Perform the refresh function

a) Insert the plug for the AC adapter into the jack on the top of the Transferpette®-8/-12 electronic.



b) Press and hold the lower arrow key (>3 sec). During the discharging process, the capacity bars for the battery indicator run continually from the top to the bottom.





c) After the controlled discharge (up to 3 hours), the charging process (3.5 hours) is started automatically. During charging, the capacity bars run continually from the bottom to the top.



Interrupting the discharge-charge cycle

Press any button to end the program. The instrument switches automatically to the standard pipette mode (PIP) and to the nominal volume and the normal charging process is started automatically, see page 62. Removing the plug for the AC adapter also ends the program.

Troubleshooting

If an error occurs, the instrument display shows “Err” and the error number is also shown. The instrument will now only react to the ENTER key. Pressing the ENTER key will attempt to restart the instrument. Therefore, a reference run is automatically requested.

Problem	Error message	Possible cause	Corrective action
Instrument does not react		Battery discharged or faulty	Charge battery for at least 5 min without operating, then only operate with charging cable attached until battery is recharged. Replace battery if needed.
		Faulty electronic component	Send in the instrument for repair.
Instrument does not react		Faulty electronic component	Send in the instrument for repair.
Instrument does not react		Unpredicted program error	Confirm error by pressing the ENTER key. The instrument is reinitialized.
Instrument does not react		No battery inserted	Insert battery.
		Battery is defective	Replace battery.
		Faulty electronic component	Send in the instrument for repair.
Display is dark	—	Electrostatic discharge	Remove and insert the battery.
Tip drips/ instrument not sealed or volume error	—	Improper tip	Only use quality tips.
		Tip is not properly seated	Press tip in firmly
		Piston seal is contaminated or damaged	Clean the instrument/ replace the seal.
Liquid is not aspirated or there is a loud motor noise	—	Piston movement is limited	Unscrew the manifold and move the metal part in the middle by hand.

Ordering Information · Accessories · Spare Parts

Transferpette®-8 electronic incl. AC adapter (110V/50-60 Hz)

Volume	2 - 20 µl	10 - 200 µl	30 - 300 µl
Cat. No.	27054 02	27054 08	27054 12

Transferpette®-12 electronic incl. AC adapter (110V/50-60 Hz)

Volume	2 - 20 µl	10 - 100 µl	30 - 300 µl
Cat. No.	27054 22	27054 28	27054 32

AC adapters

Cat. No.
7053 52

Quality pipette tips PLASTIBRAND®
racked in Tip-Box SL

Volume	Total tips per pack	Cat. No.
0.1 - 20 µl	96	7022 02
0.5 - 20 µl	96	7022 04
2 - 200 µl	96	7022 06
5 - 300 µl	96	7022 08

Repl. battery	Silicone oil	Fluorstatic gr.
Cat. No.	Cat. No.	Cat. No.
7055 00	7036 77	7036 78

Spare parts Transferpette®-8/-12 electronic

Parts will differ slightly depending on nominal volume of instrument. (Fig. shows spare parts for Transferpette®-8/-12 electronic 10-100 µl.)



Volume	A	B	C	D
2 - 20 µl	7056 70	7056 80	7034 13	7033 41
10 - 100 µl	7056 72	7056 82	7034 91	7033 44
30 - 300 µl	7056 74	7056 84	7034 91	7033 46

Repairs

If a problem cannot be fixed by following the troubleshooting guide, or by replacing one of the parts listed on page 61, then the instrument must be sent in for repair.

Please note: for the safety of courriers and our employees, and to avoid violation of federal and local laws, only clean instruments free of any chemical, biological or radioactive hazards can be inspected and repaired!

Sending in for repair

Important: Transporting of hazardous materials without a permit ist a violation of federal law.

BrandTech Scientific, Inc. will not accept instruments that are not appropriately cleaned and decontaminated.

Therefore contact BrandTEch Scientific, Inc. and obtain return authorization **before** sending your instrument for service.

Note: No warranty claims can be considered if repairs other than those described have been made or attempted.