



**NEW!**  
PhysioCare  
Concept™  
improved

# Pure simplification

[www.research-pro.info](http://www.research-pro.info)

**eppendorf**

# Master of multifunctionality

## Eppendorf Research® pro



Eppendorf is proud to present the future of pipetting: the **Research pro**. Its concept and design were based on many suggestions and experience gleaned from use in the field. The result is an easy-to-handle, multi-functional pipette which will make your laboratory routine a whole lot easier.

Once you've held a Research pro in your hand, you'll enjoy working with it so much that you'll never give it back!

### Optimized form and function

Research pro – a synonym for user-friendly multi-functionality. All pipetting options can now be performed quickly and accurately with one single pipette. From simple pipetting to dispensing tasks, to highly intricate applications – the Research pro can do everything!

### Intuitive operation

Discover simply and intuitively the many different paths open to you at the mere touch of a button. All settings and all functions are shown in the display. All users can thus perform even the most difficult pipetting techniques, reliably and quickly.

### Integrated systems

The range of Research pro models covering complete all the important volumes and applications, from single-channel through to 12-channel.



- Double click the "Program key", accidental operation not possible
- Angled display, always visible
- Color differentiated keys reduces operational errors

- Adjustable hand rest hook for individualized comfort
- Optimized dispensing function
- Adjustable tip ejector for left and right handers
- Reduced force tip ejector

This colored map explains the various techniques and applications which are possible with the Research pro. >>

- PhysioCare Concept, satisfies all 8 criteria

If you follow this color, you'll find out all you need to know about the electronic operating comfort of the Research pro. >>

- New material tip holder/nose cone, for optimal tip fit

This path will familiarize you with the entire system concept of the Research pro. >>

# Everything is possible

## Applications for the Research pro

### ● Loading gels/phase separation

When loading agarose or polyacrylamide gels, the best results are obtained at a slow dispensing speed using the Manual (MAN) option. This dispenses the liquid without blow-out, preventing the sample whirling up.

This application is also useful for phase separation, e.g. in organic extraction of nucleic acid or ethanol precipitation.

### ● Dilution series

The Serial Dilute (SDI) function is ideal for preparing dilution series of DNA samples, peptides, enzymes, antibodies etc.

In this process, pipetting is linked to a certain number of mixing cycles. The number of mixing processes and their speed can be adapted to suit the parameters of the liquid in use.

### ● Pipetting very small volumes/resuspending cells

Pipetting tiny sample quantities, for example when adding the relevant target DNA to a PCR Mastermix, is easy using the Rinse (RNS) option. In this process, the sample is automatically rinsed three times or repeated as often as required if the trigger key is kept depressed.

This function is also suitable for resuspending cells.

### ● Liquids which are difficult to dispense

Detergents and liquids containing protein are difficult to dispense, as they tend to foam. A high degree of precision is guaranteed with the aid of the Blow (BLO) option which is an additional, time-delayed dispensing step for the residual liquid.

### ● Molecular biology kits

Protocols for nucleic acid purification are easy to work through if the pipetting steps are stored as a program. For just a few plasmid preps, for example, the required volumes can be programmed in Fixed-Volume Pipetting (FIX) mode and simply called up at the touch of a button as you work. If 24 Minipreps are being performed in parallel, for example, the necessary volumes can also be dispensed in the Dispensing (DIS) mode or program.

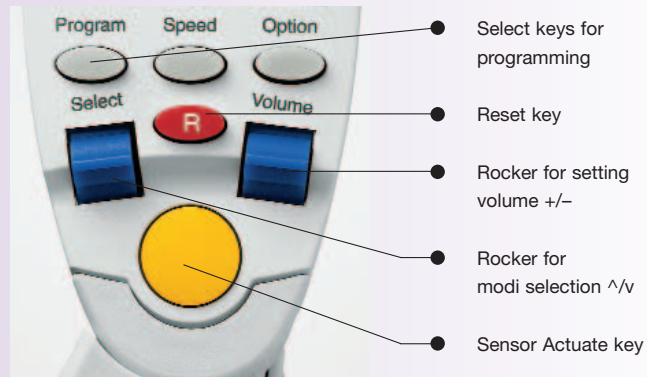
### ● Titration

Titration can be performed rapidly and accurately using the Manual (MAN) option in Pipetting (PIP) mode. The pipette displays the quantity of liquid currently being dispensed. The function is equally suitable for measuring unknown quantities of liquid or for removing supernatants. The aspiration speed can be set very low for this. The volume aspirated is automatically measured and displayed. Another use for this is overlaying or underlaying solutions (gradients).

### Operation is refreshingly straightforward.

Application options are particularly versatile, guaranteed by logical user guidance, easy-to-understand controls and a clearly legible display.

All the functions of mechanical pipettes/dispensers can be performed according to the same tried and tested operating principle via the Sensor Actuate key. Simply follow your intuition and the user guidance in the display – no traps, no secrets.



### The intuitive control panel of the Research pro.

The desired volume as well as the Pipetting or Dispensing mode can be set quickly and easily using the rocker switch.

All settings are clearly legible in the large display. Flashing symbols request input and indicate the next logical operating step. With such simple guidance, you can be sure that input is always within your control.



### ● Simple to disassemble

The autoclavable lower part can easily be removed for decontamination purposes at a flick of your wrist.

### The result is a more than convincing concept.

Each of the Research pro models forms a perfect system in combination with Eppendorf epTIPS, with or without filters. This also includes the comfort of the patented, reduced-effort tip ejector. Additionally, the Research pro, including its tip ejector, can also be used with all other common tips.

## 5x



#### Research pro, single-channel

- 0.5–10 µl
- 5–100 µl
- 20–300 µl
- 50–1,000 µl
- 100–5,000 µl

## 4x



#### Research pro, 8-channel

- 0.5–10 µl
- 5–100 µl
- 20–300 µl
- 50–1,200 µl

## 3x



#### Research pro, 12-channel

- 0.5–10 µl
- 5–100 µl
- 20–300 µl

Regardless of whether you use a single-channel or a multi-channel system, optional charging stands for one or four pipettes are available, making sure that a ready-to-use pipette is always at hand and guaranteeing that you don't lose track of things.



● **Viscous solutions**

The “reverse pipetting technique” is used to ensure that dispensing is performed with a high degree of precision. In this process, the liquid is aspirated with blow-out but dispensed without blow-out – residual liquid remains in the tip. Pipetting (PIP) mode, Reverse Pipetting (RP) option.

● **Diluting samples**

The Dilute (DIL) program can be used to dilute a concentrated sample like a DNA solution in the pipette tip. First a diluent, for example TE buffer, followed by an air bubble and then the DNA sample itself are aspirated in the same pipette tip. The entire contents of the tip are then dispensed using one of the pipetting options.

● **Filling a microtiter plate**

Antibodies for an ELISA test, for example, can be added using the Automatic Dispensing (ADS) program. Dispensing is then automatic, with aspiration and dispensing speed and dispensing frequency being preselected.

● **Pipetting techniques:** For maximum versatility processing all of the applications introduced before, the Research pro can easily be set up to perform the following techniques:

- **Pipetting with Blow-out:** A specific volume is aspirated and then dispensed. Blow-out ensures that the residual liquid in the tip is also blown out, at a time defined by the user.
- **Pipetting with Rinse:** Following pipetting, a volume is aspirated and then dispensed for rinsing or mixing purposes.
- **Dispensing:** The pipetted volume of liquid is dispensed in up to 20 defined identical partial volumes.
- **Manual Pipetting:** Liquid is aspirated or dispensed for as long as the sensor button is held down. Information on the current volume is shown in the display.
- **Reverse Pipetting:** A specific volume, including a small extra quantity of liquid, is aspirated. The predetermined volume is then dispensed exactly and the residual liquid can be discarded.
- **Fixed Volume:** Using the rocker, the most frequent volumes can be called up immediately from five stored presettings.

● **Programming:** For more complex dispensing processes, the Research pro offers expanded programming functions:

- **Sequential Pipetting:** A variety of interlinked pipetting operations are worked through in sequence.
- **Sequential Dispensing:** The total volume is dispensed in up to 20 different partial volumes.
- **Automatic Dispensing:** With the key held down, set partial volumes are dispensed in a fixed, user-defined rhythm.
- **Dilution:** Once the diluent volume and the sample volume have been aspirated, the liquid is dispensed as one.
- **Serial Dilution:** The dispensed sample is mixed with a volume of diluent. Mixing volumes and mixing cycles are also user-definable.

The Eppendorf Research® pro PhysioCare Concept pipette.



● **Tip ejector**

The ejector for reduced-effort, patented tip ejection can be set in one single rotation, by both right- and left-handed users.

**It's just a matter of the right setting.**

Operation of the Research pro is controlled acoustically by two beeper functions, which can also be switched off if required. Equally simple is the calibration of the pipette for use with liquids of different viscosities, although this setting is not required for everyday routine use. Five memory slots for all common program versions enable programming of special or frequently-used pipetting processes, which allows even complicated sequences to be transferred simply, thereby ensuring exact reproducibility.



● **Charging unit**

**(Alternative for charging stand)**  
Once connected to the main supply, the battery of the Research pro is recharged in no time at all. British, american, australian and japanese plug types are also available.



**Technical specifications**

Single-channel-model Volume range (µl)	Eppendorf epTIPS	Volume (µl)	Volume increment (µl)	Systematic error (Inaccuracy) (%)	Random error (Imprecision) (%)
0.5–10 (anthracite button)	20 µl	1	0.01	±2.5	≤1.8
		5		±1.5	≤0.8
		10		±1.0	≤0.4
5–100 (yellow button)	100 µl	10	0.1	±2.0	≤1.0
		50		±1.0	≤0.3
		100		±0.8	≤0.2
20–300 (yellow button)	300 µl	30	0.5	±2.5	≤0.7
		100		±1.0	≤0.3
		300		±0.6	≤0.2
50–1,000 (blue button)	1 ml	100	1.0	±3.0	≤0.6
		500		±1.0	≤0.2
		1,000		±0.6	≤0.2
100–5,000 (lilac button)	5 ml	500	10	±3.0	≤0.6
		2,500		±1.2	≤0.25
		5,000		±0.6	≤0.15
<b>Multi-channel-model</b>					
<b>Volume range (µl)</b>					
0.5–10 (anthracite button)	20 µl	1	0.01	±5.0	≤3.0
		5		±3.0	≤1.5
		10		±2.0	≤0.8
5–100 (yellow button)	100 µl	10	0.1	±2.0	≤2.0
		50		±1.0	≤0.8
		100		±0.8	≤0.25
20–300 (yellow button)	300 µl	30	0.5	±2.5	≤1.0
		150		±1.0	≤0.5
		300		±0.6	≤0.25
50–1,200 (green button)	1.25 ml	120	5.0	±6.0	≤0.9
		600		±2.7	≤0.4
		1,200		±1.2	≤0.3

\* Data for imprecision and inaccuracy is valid only when Eppendorf tips are used.

# Research<sup>®</sup> pro

## Ordering information:

Name	Order no.	Brinkmann Order no.	Name	Order no.	Brinkmann Order no.
<b>Single-channel pipette with charging unit</b>			<b>Multi-channel pipette without charging unit</b>		
0.5–10 µl	4860 000.011	022461303	0.5–10 µl, 8-channel	4860 000.313	022461443
5–100 µl	4860 000.020	022461311	0.5–10 µl, 12-channel	4860 000.321	022461516
20–300 µl	4860 000.038	022461320	5–100 µl, 8-channel	4860 000.330	022461451
50–1,000 µl	4860 000.046	022461338	5–100 µl, 12-channel	4860 000.348	022461524
100–5,000 µl	4860 000.054	022461346	20–300 µl, 8-channel	4860 000.356	022461460
<b>Single-channel pipette without charging unit</b>			20–300 µl, 12-channel	4860 000.364	022461532
0.5–10 µl	4860 000.062	022461354	50–1,200 µl, 8-channel	4860 000.372	022461478
5–100 µl	4860 000.070	022461362	<b>Accessories</b>		
20–300 µl	4860 000.089	022461371	Charging stand		
50–1,000 µl	4860 000.097	022461389	for one pipette	4860 000.267	022461541
100–5,000 µl	4860 000.100	022461397	Charging stand		
<b>Multi-channel pipette with charging unit</b>			for four pipettes	4860 000.860	022461559
0.5–10 µl, 8-channel	4860 000.518	022461401	Spare battery	4860 501.002	022467018
0.5–10 µl, 12-channel	4860 000.526	022461486			
5–100 µl, 8-channel	4860 000.534	022461419			
5–100 µl, 12-channel	4860 000.542	022461494			
20–300 µl, 8-channel	4860 000.550	022461427			
20–300 µl, 12-channel	4860 000.569	022461508			
50–1,200 µl, 8-channel	4860 000.577	022461435			

## Eppendorf's 8 PhysioCare Concept™ criteria:



- Integrated systems
- Exceptional durability
- Optimized form and function
- Perfectly balanced
- Intuitive operation
- Minimal user exertion
- Simple maintenance
- Total support

Visit the special Eppendorf  
PhysioCare Concept™ website  
[www.physiocare-concept.info](http://www.physiocare-concept.info)

- to check out on-line how good your pipette really is!
- to read more about the PhysioCare Concept™!
- to get valuable tips and tricks on pipetting!

# eppendorf

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