

opus® titration and opus® dispenser

Motorised titration and dispensing ensures reproducible results.
opus® 10 ml: titration and dispensing in 1 µl steps.



From 10 μ l to 99.999 ml in 1 μ l steps.

The new opus® 10 ml.

- **Motorised titration and dispensing in the smallest of steps:** 0.010 ml – 99.999 ml in 1 μ l steps
- **Extremely slow suctioning and dispensing speeds can be selected:** 0.01 ml/s to 2 ml/s
- **PIN-function:** adaptation of unit function range for users with different authorisations
- **Modular accessory range:** enabling integration of opus® in different application environments



PIN for enhanced security

The unit can be configured with a PIN inquiry function to protect against accessing by unauthorised persons or for enabling only selected functions.



Increased efficiency, guaranteed reproducibility

opus® is a bottle attachment designed for titration and dispensing. Automated procedures and the modular control concept make laboratory routines speedier, safer and more accurate: parameters are configured and working procedures triggered on the control module. Dispensing of the medium is motorized. This rules out deviations caused by manual control and guarantees absolute reproducibility of results.

Volumetric measurement in 1 μ l steps

The new opus® 10 ml now enables titration and dispensing in the smallest-imaginable steps from 10 μ l to 99.999 ml, delivering resolutions up to the third decimal place. Extremely slow suctioning and dispensing speeds (from 0.01 ml/s to 2 ml/s) can be selected (e.g. for viscous media).

Newly-developed accessory range for maximum adaptability

The modular accessory range perfectly complements an already varied choice of application options, making opus® a truly all-round unit. A broad range of applications can be realised with a minimum of accessories, thanks to the ingenious modular design.



More information on the opus® titration and opus® dispenser can be found in our comprehensive brochures.



Base support instead of bottle attachment

The base support enables suctioning of the medium directly from a separate storage container using a tube.



Stand clip for fixing the basic unit

The stand clip facilitates use of opus® in a stand assembly.



Adapter with NS 12/21 filling tube for funnel

The adapter with NS 12/21 filling tube enables problem-free filling of medium through a funnel – without unscrewing the basic unit.



Ejection units with fine tips

These even finer tips facilitate precision realisation of the finest droplets. Variable and spiral ejection units with fine tips allow the user to achieve exactly the results required in practically every area of application.



Ground adapter for direct reagent extraction from a ground bottle

The NS 29/32 ground adapter enables secure use of the basic unit on standard ground bottles.



USB link and RS 232 interface for direct PC connection

The complete spectrum of functions can be triggered from the PC and all data read out via the USB connection and RS 232 interface.



opus® titration and opus® dispenser

10 ml, 20 ml, 50 ml

- Maximum regularity and precision during dispensing and titration
- Cleaning and dismantling of parts conveying medium is simple, precise and speedy
- Inert materials ensure chemical resistance, enhance functional reliability and enable working with a variety of different media
- Individual calibration enables working with media of the most diverse densities and viscosity and ensures reliability of results, even where varying ambient conditions prevail
- Electronic control and motorised volume dispensing ensure reproducible results – absolutely independent of the user
- Variable selection of suctioning and dispensing possible, enabling media flexibility and optimised adaptation to individual dispensing and titration tasks
- Intuitive control via touchscreen – with a sophisticated menu guide enabling simple, rapid and reliable control without time-consuming product training

User-independent and efficient

The user controls the entire process via the touchscreen: from volume configuration to triggering of the procedure. The volume is displayed with selective resolutions up to the second or third decimal place.



product
design
award

2008



product
design
award

2009



reddot design award
winner 2009

Award-winning design and handling excellence.

opus® is not only a winner in the laboratory. Its attractive design and ingenious functional concept have also gained it accolades at the most prestigious international design competitions.

opus® dispenser. HiClass in motorised dispensing.

Performance data Basic dispenser unit	10 ml	20 ml	50 ml
Unit type	Microprocessor-controlled, motorised piston lift system with recirculation		
Volume range	0.01 ml - 99.99 ml bzw. 0.010 - 99.999 ml (maximum piston lift 10 ml, automatic addition), resolution: < 1 µl.	0.1 ml - 200 ml (maximum piston lift 20 ml, automatic addition), resolution: < 1 µl	1 ml - 500 ml (maximum piston lift 50 ml, automatic addition), resolution: < 2 µl
Volume accuracy	dispenser: R = 0.6 %, CV = 0.2 % stepper: R = 0.5 %, CV = 0.3 %		dispenser: R = 0.6 %, CV 0.2 % stepper: R = 0.5 %, CV = 0.25 %
Velocity	Independently adjustable in 16 steps from 0.01 ml/s - 2 ml/s for suctioning and dispensing speed	Independently adjustable in 10 steps from 0,1 ml/s - 4 ml/s for suctioning and dispensing speed	Independently adjustable in 10 steps from 1 ml/s - 10 ml/s for suctioning and dispensing speed
Operating temperature range	+4°C to +40°C		
Power supply	Plug-in mains unit 15V 850 mA (optionally with battery in control unit)		
Optional battery operation	Battery charge for an average of 2.5 - 3 h continuous operation, battery capacity indicated on TFT display, charging time approx. 6.5 h, intelligent electronics prevent overloading and deep discharging		
Materials	Housing made of PA6 reinforced glass fibre, all parts in contact with liquid are made of chemically inert material		
Cleaning, sterilisation	Motorised rinsing function, can be disconnected without tools, media-conveying components are suitable for steam sterilisation (121°C)		
Aeration	Automatic at the push of a button		
Dimensions/ Weight	320 mm x 80 mm x 63 mm (H x D x W)/ 660 g		
Quality control	Conforms to DIN EN ISO 8655		
Documentation	DIN EN ISO 9001 compliant certification through unit protocol with serial number		

Performance data Control dispenser unit	10 ml	20 ml	50 ml
Module type	External control module incl. touch screen control		
Touchscreen	3.5" with 320 X 240 pixel, most important functions directly accessible from main screen		
Individual dispensing	Volumes from 0.01 ml – 99.99 ml and 0.010 – 99.999 ml	0.1 ml - 200 ml	1 ml - 500 ml
Serial dispensing	Number of repetitions (1 to 9999). Cycle time 1 s to 9999 s		
Stepper function	Dispensing of up to 10 partial volumes from a single cylinder, manual or with serial dispensing function.		
Quick-Cal	Calibration of other temperature or medium possible		
Method memory	Up to 9 different unit configurations can be saved		
Languages	4 languages (D, GB, F, S) integrated as standard option		
PC interface	USB or RS232		
Remote control	Unit can be remotely controlled via an additional cable-connected device		
Dimensions/ Weight	55 mm x 130 mm x 110 mm (H x D x W) / 230 g (without battery)		

Scope of delivery

opus with A 45 internal thread and additional A 32, A 38 and S 40 threaded adapters

Suction hose, recirculation hose, ejection unit, valve fitting wrench, power supply unit, data power cable, operating manual and individual quality certificate

Order number	Article designation
958 10 10	opus dispenser 10 ml, power supply unit with Euro plug 230 Volt
958 11 10	opus dispenser 10 ml, power supply unit with UK plug 230 Volt
958 12 10	opus dispenser 10 ml, power supply unit with US plug 120 Volt
958 10 20	opus dispenser 20 ml, power supply unit with Euro plug 230 Volt
958 11 20	opus dispenser 20 ml, power supply unit with UK plug 230 Volt
958 12 20	opus dispenser 20 ml, power supply unit with US plug 120 Volt
958 10 50	opus dispenser 50 ml, power supply unit with Euro plug 230 Volt
958 11 50	opus dispenser 50 ml, power supply unit with UK plug 230 Volt
958 12 50	opus dispenser 50 ml, power supply unit with US plug 120 Volt

Accessories for opus dispenser and titration 10 ml, 20 ml and 50 ml

Order number	Article designation
931 30 41	Ejection unit, fine
931 30 26	Ejection unit, flexible, spiral shaped, inner diameter 1.5 mm
956 30 04	Ejection unit, titration, variable
931 37 41	Adapter with A 45 filler
931 37 42	Ground adapter, silicon, A 45 compliant with NS 29/32
931 70 00	Base support for individual media feed
931 40 06	Suctioning hose 2 m
934 40 07	Suctioning hose 5 m
931 51 41	Recirculation hose 2 m
931 51 42	Recirculation hose 5 m
931 70 03	Stand clip, stainless steel for opus/ solarus/ ceramus
931 70 02	Stand sleeve, stainless steel
931 70 01	Stand 500 mm, stainless steel
958 71 01	Vehicle adapter 12 V for opus/ pipetus

opus® titration. HiClass in motorised titration.

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Unit type	Microprocessor-controlled, motorised piston lift system with recirculation		
Volume range	0.01 ml - 99.99 ml and 0.010 - 99.999 ml, (maximum piston lift 10 ml, automatic addition), resolution: < 1 µl	0.1 ml - 200 ml (maximum piston lift 20 ml, automatic addition), resolution: < 1 µl	1 ml - 500 ml (maximum piston lift 50 ml, automatic addition), resolution: < 2 µl
Volume accuracy	R = 0.2 %, CV = 0.07 %	R = 0.2 %, CV = 0.07 %	R = 0.2 %, CV = 0.05 %
Velocity	Independently adjustable in 16 steps from 0.01 ml/s - 2 ml/s for suctioning and dispensing speed	Independently adjustable in 10 steps from 0,1 ml/s - 4 ml/s for suctioning and dispensing speed	Independently adjustable in 10 steps from 1 ml/s - 10 ml/s for suctioning and dispensing speed
Operating temperature range	+4°C to +40°C		
Power supply	Plug-in mains unit 15V 850 mA (optionally with battery in control unit)		
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Cleaning, sterilisation	Motorised rinsing function, can be disconnected without tools, media-conveying components are suitable for steam sterilisation (121°C)		
Aeration	Automatic at the push of a button		
Dimensions/ Weight	320 mm x 80 mm x 63 mm (H x D x W)/ 660 g		
Quality control	Conforms to DIN EN ISO 8655		
Documentation	DIN EN ISO 9001 compliant certification through unit protocol with serial number		

Performance data Control titration unit	10 ml	20 ml	50 ml
Module type	External control module incl. touch screen control		
Touchscreen	3.5" with 320 X 240 pixel, most important functions directly accessible from main screen		
Titration volume preselection	up to 10 ml	up to 20 ml	up to 50 ml
Rapid titration	For rapid medium dispensing at beginning of titration process		
Droplet titration	With 1 droplet per button push, accelerating if button is pressed		
Quick-Cal	Calibration of other temperature or medium possible		
Method memory	Up to 9 different unit configurations can be saved		
Languages	4 languages (D, GB, F, S) integrated as standard option		
PC interface	USB or RS232		
Remote control	Unit can be remotely controlled via an additional cable-connected device		
Dimensions/ Weight	55 mm x 130 mm x 110 mm (H x D x W) / 230 g		

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958 22 10	opus titration 10 ml, power supply unit with US plug 120 Volt
958 20 20	opus titration 20 ml, power supply unit with Euro plug 230 Volt
958 21 20	opus titration 20 ml, power supply unit with UK plug 230 Volt
958 22 20	opus titration 20 ml, power supply unit with US plug 120 Volt
958 20 50	opus titration 50 ml, power supply unit with Euro plug 230 Volt
958 21 50	opus titration 50 ml, power supply unit with UK plug 230 Volt
958 22 50	opus titration 50 ml, power supply unit with US plug 120 Volt

Please visit www.hirschmannlab.com for more information on our pipetting, dispensing, titration, volumetric measuring and other precision glass capillary solutions.

Hirschmann Laborgeräte GmbH & Co. KG

Hauptstraße 7 - 15

74246 Eberstadt, Germany

Fon +49 (0) 71 34/5 11-0

Fax +49 (0) 71 34/5 11-90

www.hirschmannlab.com

info@hirschmannlab.com