

Инструменты для микродиализа

Описание

По вопросам продаж и поддержки обращайтесь:

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CMA 110 Liquid Switch

The CMA 110 Liquid Switch permits manual switching between up to three perfusion lines (syringes) and a microdialysis probe. This makes it possible to change different solutions instantaneously without any risk of introducing air bubbles into the microdialysis probe.

- Instantly switch between syringes
- No interruption of flow
- Prevent introduction of air bubble

Item No.	Description
CMA8308200	CMA 110 Liquid Switch with Tubing Kit
CMA3408550	Replacement Tubing Kit for CMA 110



DETAILS



The CMA 110 Liquid Switch permits manual switching between up to three perfusion lines (syringes) and a microdialysis probe. This makes it possible to change different solutions instantaneously without any risk of introducing air bubbles into the microdialysis probe.

- Instantly switch between syringes
- No interruption of flow
- Prevent introduction of air bubble

SPECIFICATIONS



Specifications

CMA8308200

Size	66 x 46 x 50 mm
Weight	0.13 kg
Internal volume	Inlet side 1.7 l, Outlet side 1.7 l

CMA 120 System for Freely Moving Animals

The CMA 120 System for Freely Moving Animals enables microdialysis studies on conscious, small laboratory animals over long periods of time.

- Balance arm with dual channel swivel
- Secures tubing away from the animal and prevents twisting

Item No.	Description
CMA8309049	CMA 120 System for Freely Moving Animals
CMA8309672	CMA 120 Bowl with Food and Water Containers (Height 360 mm, Diameter 400 mm)
CMA8409029	CMA 120 System without Bowl
CMA8309031	CMA 120 Plastic Bowl (Height 360 mm, Diameter 400 mm)
CMA8309048	CMA 120 Complete Swivel Assembly
CMA2409090	CMA 120 Swivel Assembly without Swivel
CMA2409051	CMA 120 Wire Set with Collar Connector
CMA8309032	CMA 120 Balance Arm
CMA8002714	CMA 120 Swivel Pin and Gimbal
CMA2409069	CMA 120 Plastic Vial Holder
CMA2409091	CMA 120 Wire Attachment
CMA7431059	Plastic Animal Collar (pkg. of 100)

Item No.	Description
CMA3409500	Tubing Adapters for CMA Microdialysis Probes, pkg. of 10
CMA3409501	FEP Tubing, 0.12 mm ID, 1 m (pkg. of 1)
CMA8409501	FEP Tubing, 0.12 mm ID, 1 m (pkg. of 10)
CMA8309046	CMA 120 Instrument Table



DETAILS



The CMA 120 System for Freely Moving Animals enables microdialysis studies on conscious, small laboratory animals over long periods of time.

CMA 120 System for Freely Moving Animals includes:

- CMA 120 plastic bowl

- CMA 120 swivel assembly
- CMA 120 balance arm
- Plastic collar (100 pcs)
- Tubing adapters (10 pcs)
- FEP tubing (1 m)
- Vial, plastic 300 μ l (25 pcs)
- Caps, plastic (25 pcs)

The CMA 120 instrument can be used in combination with any one of the microdialysis systems. The microdialysis probe is attached to a CMA Syringe Pump, the CMA 110 Liquid Switch, and to any of the CMA 142 or CMA 470 collection devices via a dual channel swivel.

The swivel is mounted on the balancing arm allowing free movement of the animal. The swivel brace holds a wire with a collar connector and two holders for 300 μ l plastic vials.

The wire attached to the animal collar turns the swivel and supports the tubing. Manual fraction collection is used when two microdialysis probes are implanted, or when microdialysis is combined with local injection via one channel of the swivel.

The CMA 120 Bowl with Food and Water Containers is used in studies where a freely moving animal will be contained for longer periods of time. The additions of these containers allow the animal to feed and drink ad libitum. The food container and water bottle are arranged on the outside of the bowl so as not to disturb the movement of the tethered animal when inside the bowl.

Both containers are easily removed for cleaning and refilling.

CMA 130 In Vitro Stand

The CMA 130 In Vitro Stand is used for storage and during testing of microdialysis probes.

- Lengthens probe life
- Facilitates safe storage of probes
- Simplifies calibrations, recovery tests

Item No.	Description
CMA8309001	CMA 130 In Vitro Stand Only
CMA8309102	CMA 130 In Vitro Stand with CMA 11 & 12 Probe Clips (3 clips)
CMA8309103	CMA 130 In Vitro Stand with Probe Shaft Clip (1 clip) and 11 & 12 Probe Clips (2 clips)
CMA8309104	CMA 130 In Vitro Stand with CMA 7 Probe Clips (3 clips)
CMA P000136	CMA 7 & 8 Probe Clip
CMA8309013	CMA 11 & 12 Probe Clip
CMA8309003	CMA Probe Shaft Clip
CMA8309004	Connecting Rod for Probe Clip
CMA8309005	Stereotaxic Adapter



DETAILS



The CMA 130 In Vitro Stand is used for storage and during testing of microdialysis probes. The stand includes three holders for 1.5 ml Eppendorf tubes and three probe clips.

- Lengthens probe life
- Facilitates safe storage of probes
- Simplifies calibrations, recovery tests

There are three types of clips:

- CMA 11+12 Clip holds the flat body of the CMA 11 or CMA 12 Probes or their Guide Cannulae
- CMA Probe Shaft Clip holds the shaft of the CMA 11 or CMA 12 Probe as well as the CMA 20 Probe, and the CMA 7 Clip holds the body of a CMA 7 Probe or Guide Cannula
- CMA 130 can be supplied with three combinations of clips

The clip can be mounted in the stereotaxic instrument using the stereotaxic adapter and the connecting rod.

CMA 142 Microfraction Collector

DISCONTINUED ITEM, SEE CMA 470 FRACTION COLLECTOR AS ALTERNATIVE

The CMA 142 Microfraction Collector is a unique, stand-alone instrument dedicated to microdialysis sampling.

- Sampling from one or two probes
- Precision and accuracy from 1 Åµl
- Compact design
- Easy to use

Item No.	Description
CMA7431100	Vials, Plastic 300 µl (pkg. of 1000)
CMA7431102	Caps, Plastic (pkg. of 1000)



DETAILS



DISCONTINUED ITEM, SEE CMA 470 FRACTION COLLECTOR AS ALTERNATIVE

The CMA 142 Microfraction Collector is a unique, stand-alone instrument dedicated to microdialysis sampling. Fractions ranging from 1 to 50 μ L can be collected from one or two microdialysis probes (1 x 20 or 2 x 10 samples respectively). The low noise cassette movement prevents any distress to experimental animals, and the size of the instrument (130 W x 80 H x 100 D mm) permits placement close to the experiment without long connection tubing.

- Sampling from one or two probes
- Precision and accuracy from 1 μ L
- Compact design
- Easy to use

SPECIFICATIONS



Specifications	CMA8381143	CMA8381142
Minimum fraction volume	1 ½l	1 ½l
Maximum fraction volume	50 ½l	50 ½l
Number of fractions	1 x 20 or 2 x 10	1 x 20 or 2 x 10
Size	130 x 100 x 80 mm	130 x 100 x 80 mm
Weight	0.57 kg	0.57 kg
Power	115 V, 50 Hz	230 V, 60 Hz

CMA 470 Refrigerated Microfraction Collector

The CMA 470 Refrigerated Fraction Collector is specifically designed to collect microliter volume fractions typical of microdialysates.

- Fractions cooled down to +6 Â°C
- Fractions from 1 to 1200 Âµl
- Holds up to 64 vials
- Optional collection into four vials simultaneously

Item No.	Description
CMA8002770	CMA 470 Refrigerated Fraction Collector
CMA7431100	Vials, Plastic 300 µl (pkg. of 1000)
CMA7431102	Caps, Plastic (pkg. of 1000)
CMA8320010	Cassette for 300 µl Vials, Plastic
CMA8320008	Cassette for 2 ml Vials, Aluminum
CMA8002999	Cannula for Tubing
CMA8003000	Cannula for Septa
CMA8002775	Holder for Single Cannula
CMA8002777	Holder for Dual Cannula
CMA8002774	Holder for Four Cannulae



DETAILS



The CMA 470 Refrigerated Fraction Collector is specifically designed to collect microliter volume fractions typical of microdialysates.

The CMA 470 Refrigerated Fraction Collector includes:

- 4 cassettes for small vials
- Holder for single cannula
- Holder for dual cannulae
- Holder for quadruple cannulae
- 4 cannulae for tubing
- 4 cannulae for septa

It has thermoelectric cooling down to +6°C and the fractions can be collected in sealed vials. Both of these are important considerations for the prevention of evaporation and chemical degradation. It is possible to collect fractions as small as 1 µl at the bottom of each vial.

The capacity of the collector is 64 vials of 300 µl each or 40 vials of 2 mL each. Equipped with a quadruple assembly, the CMA 470 can collect fractions from up to four probes simultaneously. There is also an option to collect samples into open vials.

The fraction collector is a stand alone instrument, but it is equipped with a digital Input/Output port and an RS-232 interface for connection to the customer's own software.

SPECIFICATIONS



Specifications

CMA8002770

Collection	1 1/4 L – 1.2 ml
Number of vials	64 x 300 1/4 l, 40 x 2.0 ml
Septa	Non-Reclosing Cooling
Cooling capacity	- 15 °C from environmental temperature or better
Temperature accuracy	±1.5 °C
Collection modes	Time, minutes and seconds
Computer connectio	RS232 Serial Interface and USB
Voltage	100–240 VAC, 50–60 Hz
Size	222 x 279 x 142 (167) mm (WxDxH)
Weight	Approx. 3.8 kg

CMA 402 Microdialysis Syringe Pump

The CMA 402 Syringe Pump is a compact, flexible, dual syringe pump designed for low pulse-free flow rates suitable for microdialysis experiments and other low flow experiments. Start/Stop and flow rate can be set individually for each syringe.

The pump is precalibrated for 1, 2.5 or 5 mL syringes with flow rates between 0.1 $\mu\text{L}/\text{min}$ and 20 $\mu\text{L}/\text{min}$. The flow rates are shown on the LED displays. The CMA 402 Microdialysis Pump is even more flexible when controlled by a computer through the RS-232 interface. For instance, a preset volume can easily be set. A flush feature fills the system at a flow rate of 25 $\mu\text{L}/\text{min}$. The CMA 402 is available in two different versions, one of which includes accessories such as vial holders and probe clips, allowing easier handling of the microdialysis probe.

Item No.	Description
CMA8003100	CMA 402 Microdialysis Syringe Pump with Accessory Kit
CMA8003110	CMA 402 Microdialysis Syringe Pump



DETAILS

The CMA 402 Syringe Pump is a compact, flexible, dual syringe pump designed for low pulse-free flow rates suitable for microdialysis experiments and other low flow experiments.

- Dual syringes independently controlled
- Flow rates from 0.1- 20 $\mu\text{L}/\text{min}$
- Independent flow directions to infuse or withdraw

Start/Stop and flow rate can be set individually for each syringe. The pump is precalibrated for 1, 2.5 or 5 mL syringes with flow rates between 0.1 $\mu\text{L}/\text{min}$ and 20 $\mu\text{L}/\text{min}$. The flow rates are shown on the LED displays. The CMA 402 Microdialysis Pump is even more flexible when controlled by a computer through the RS-232 interface. For instance, a preset volume can easily be set. A flush feature fills the system at a flow rate of 25 $\mu\text{L}/\text{min}$. The CMA 402 is available in two different versions, one of which includes accessories such as vial holders and probe clips, allowing easier handling of the microdialysis probe.

SPECIFICATIONS

Specifications	CMA8003100	CMA8003110
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Accuracy	±1.5%	±1.5%
Calibration	Precalibrated	Precalibrated
Certifications	CE	CE
Computer connection	RS232 and USB	RS232 and USB
Dimensions	207 x 135 x 48 mm (W x D x H)	207 x 135 x 48 mm (W x D x H)
Display	2-digit LED display showing flow rate or syringe size	2-digit LED display showing flow rate or syringe size
External connections	Variable	Variable
Fast Feed	Approx.20 µL/min (with 1 mL syringe)	Approx.20 µL/min (with 1 mL syringe)
Flow rate range	0.1 µL/min - 20 µL/min	0.1 µL/min - 20 µL/min
Motor	High resolution step motor system	High resolution step motor system
Motor Drive Control	-	-
Number of syringes	2, Indep. Control	2, Indep. Control
Piston carriage speed	2.4 µm/min-1.2 mm/min	2.4 µm/min-1.2 mm/min
Power consumption	10 W max	10 W max
Speed variation	±1.5%	±1.5%
Syringe sizes	1, 2.5 and 5 mL, piston stroke 60 mm	1, 2.5 and 5 mL, piston stroke 60 mm
Voltage	100-240 VAC 50-60 Hz, output 12 VDC (adapter included)	100-240 VAC 50-60 Hz, output 12 VDC (adapter included)
Weight	approx. 1.4 kg	approx. 1.4 kg
Working temperature	10-35°C	10-35°C

CMA 4004 Microdialysis Syringe Pump

The CMA 4004 Touch Screen Syringe Pump is a totally new design that is easy-to-use and can hold four syringes, providing very broad flow ranges rate suitable for microdialysis.

Item No.	Description
CMA400400	CMA 4004 Microdialysis Touch Screen Syringe Pump



[DETAILS](#)



The CMA 4004 Syringe Pump is a totally new design that is easy-to-use and can hold four syringes, providing very broad flow ranges rate suitable for microdialysis. In addition, the pump can deliver very precise micro-injections that can be repeated in intervals.

- Four syringe carriage
- Ability to use non-standard syringe types
- Pulse free flow
- Flow rates from 0.54 pL/min to 11.70 mL /min
- Quick setup using the builet-in syringe library
- Email methods to your peers, download methods and upgrade your software remotely

Using the high resolution LCD color touch screen makes it very easy to program and recall methods. The direction of flow can easily be reversed for experiments requiring fluid withdrawal. The CMA 4004 Syringe Pump has the ability to run in a horizontal or vertical orientation. This allows choosing the proper orientation based on the experiment setup. The CMA 4004 is equipped with RS-485 for daisy chaining pumps and Digital I/O for remote control as well as USB serial port for computer control.

The CMA 4004 microdialysis syringe pump is provided with 2 years warranty.

SPECIFICATIONS



Specifications

CMA400400

Pump Configuration	Standard
Pump Function	Infusion/Withdrawal/Programmable
Flow Rate Maximum	11.70 ml/min using 10 ml syringe
Flow Rate Minimum	0.54 pl/min using 0.5 Âµl syringe
Syringe Size Minimum	0.5 Âµl
Syringe Size Maximum	10 ml
Max Linear Force	35 lbs @ 100% Force Selection
I O TTL Connectors	15 pin D-Sub Connector
RS 232 Connectors	optional RJ-11
USB Connectors	Type B
Accuracy	Â±0.35%
Non Volatile Memory	Storage of all settings

Specifications**CMA400400**

Drive Motor	0.9° Stepper Motor
Motor Drive Control	Microprocessor with 1/16 microstepping
Number of Microsteps per one rev of Lead Screw	20,480
Step Rate Minimum	27.5 sec/μstep
Step Rate Maximum	26 μsec/μstep
Pusher Travel Rate Minimum	0.068 μm/min
Pusher Travel Rate Maximum	71.55 mm/min
Display	4.3" WQVGA TFT Color Display with Touchpad
Input Power	12–30 VDC
Voltage Range	100–240 VAC, 50/60 Hz
Dimensions Control Box LxDxH in cm	9.0 x 7.0 x 6.0 (22.6 x 17.78 x 15.0)
Net Weight Metric	2.1 kg
Net Weight English	4.6 lb
Environmental Operating Temperature Metric	4°C to 40°C
Environmental Operating Temperature English	40°F to 104°F
Environmental Storage Temperature Metric	–10°C to 70°C
Environmental Storage Temperature English	14°F to 158°F
Environmental Humidity	20% to 80% RH, non condensing
Mode of Operation	Continuous
Classification	Class I
Pollution Degree	I
Installation Category	II
Regulatory Certifications	CE, UL, CSA, CB Scheme, EU RoHS

Homeothermic Monitoring System

The Harvard Apparatus Homeothermic Monitoring System is a closed loop temperature control system for small rodents. It features an easy-to-use touchscreen, small flexible rectal probe, and heating pads available in several sizes to meet all your surgical needs. The Homeothermic Monitoring System is the perfect addition to any lab utilizing anesthesia in small rodents.

Key Features

- Easy-to-use color touchscreen
- Flexible rectal probe
- Easy to clean, flexible heating pad
- Multiple heating pad sizes available
- Insulation pad insulates heating pad from surgical surface to prevent heat loss and improve efficiency

Accessories and replacement items are also available. Please see Item Listing

Item No.

Description

55-7020

Homeothermic Monitoring System includes: Homeothermic Control Unit, Flexible Rectal Probe, Standard Size Heating Pad (12.0 x 20.5 cm), Insulation Pad and USB cable

55-7034

Homeothermic Monitoring System includes: Homeothermic Control Unit, Flexible Rectal Probe, Large Size Heating Pad (20.3 x 25.4 cm), Insulation Pad and USB cable

55-7030

Homeothermic Monitoring System includes: Homeothermic Control Unit, Flexible Rectal Probe, Mouse Stereotaxic Heating Pad (7.0 x 14.5 cm), Insulation Pad and USB cable

55-7031

Homeothermic Monitoring System includes: Homeothermic Control Unit, Flexible Rectal Probe, Stereotaxic Gas Anesthesia Heating Pad (3.7 x 14.5 cm), Insulation Pad and USB cable

Item No.	Description
55-7021	Flexible Rectal Probe, 1.6 mm OD
55-7022	Heating Pad, standard, 12.0 x 20.5 cm
55-7023	Heating Pad, for Mouse Stereotaxic Adapter, 7.0 x 14.5 cm
55-7025	Insulation Pad, for Standard Heating Pad, 12.0 x 20.5 cm
55-7033	Insulation Pad, for Large Heating Pad, 20.3 x 25.4 cm



The Homeothermic Monitoring System is a closed loop temperature control system for small rodents. The subject's core body temperature can be accurately controlled utilizing a small, flexible rectal probe to monitor the animal's core temperature and a heating pad to provide heat input. The system is provided complete and includes the control unit, flexible rectal probe, standard size heating pad (12 x 20.5 cm) and an insulation pad that insulates the heating pad from the surgical surface to prevent heat loss and improve efficiency.

- Easy-to-use color touchscreen
- Flexible rectal probe
- Easy to clean, flexible heating pad
- Multiple heating pad sizes available

The easy-to-use touchscreen allows users to set the target temperature and clearly view the subject's current core body temperature, as well as the set temperature, at all times. Additionally, audible alarms can be set to advise the user should the animal's core body temperature deviate $\pm 1^{\circ}\text{C}$ from the set temperature.

Heating pads are available in three sizes to fit all your surgical needs. The standard size is appropriate for mice and rats and fits nicely into standard stereotaxic instruments. Two additional sizes are available to fit the common stereotaxic instrument adapters. The pads are flexible enough to fully wrap the animals, which allows the animal to be warmed from all sides rather than just the front or back.

SPECIFICATIONS



Temperature Range	20 to 50°C (68 to 122°F)
Resolution	0.1°C
Integrated Temperature Sensor	Yes
Temperature Stability	+/-0.1°C
Temperature Display	User selectable °C and °F
Pad Material	Silicone
Pad Size	12.0 x 20.5 cm (4.72 x 8.07 in)
Probe	Flexible rectal probe
Probe Tip Diameter	1.6 mm (0.06 in)
Probe Shaft Diameter	1.6 mm (0.06 in)
Probe Shaft Length	100 mm (3.94 in)
Serial Communication	RS-485
Analog Output	0 to 5 V, 20 to 50°
Analog Input	0 to 5 V, 20-50°

Dimensions (H x W x D)	12.0 x 22.6 x 15.8 cm (4.72 x 8.91 x 6.21 in)
Weight	0.68 kg (1.5 lb)
Power	100 to 240 VAC, 50/60 Hz
Regulatory	CE, ETL (UL, CSA), WEEE, EU RoHS
Warranty	1 year

Reglo ICC Digital Peristaltic Pump

The Reglo Independent Channel Control (ICC) Digital Peristaltic Pumps provide individually addressable control of each fluidic channel, eliminating the clutter of multiple pumps on the benchtop. Each channel is independently programmable from the pump or the computer.

Note: 12-Roller models (750511, 75-0512 and 750515) can be used for microdialysis applications.

Item No.	Description
75-0070	Reglo ICC Digital 3-Channel, 8-Roller Peristaltic Pump
75-0510	Reglo ICC Digital 2-Channel, 8-Roller Peristaltic Pump
75-0511	Reglo ICC Digital 4-Channel, 12-Roller Peristaltic Pump
75-0512	Reglo ICC Digital 2-Channel, 12-Roller Peristaltic Pump
75-0513	Reglo ICC Digital 2-Channel, 6-Roller Peristaltic Pump
75-0514	Reglo ICC Digital 3-Channel, 6-Roller Peristaltic Pump
75-0515	Reglo ICC Digital 3-Channel, 12-Roller Peristaltic Pump
73-3054	MS/CA Pressure Lever Cassette Cartridge, 3-Stop, POM-C



DETAILS



The Reglo Independent Channel Control (ICC) Digital Multi-Channel Peristaltic Pumps allow individual control of the flow and direction of each fluidic channel. Each channel is independently programmable from the pump's intuitive keypad or via the computer. A single compact unit delivers continuous pumping or precision dispensing with the capability of bidirectional flow in each channel. Plus, independent channel calibration minimizes tube-to-tube differences, resulting in the best calibration accuracy possible in a multichannel peristaltic pump.

Features

- Continuous pumping or precision dispensing
- Flexibility of bi-directional flow in each channel
- Flow rate 0.002 ml/min to 43 ml/min depending on version and tube size
- Easy-to-use tubing cassettes allow quick changeovers
- USB interface for quick connections
- Available with two or four channels, each with independent functionality

- PC control or keypad control
-

Operating Modes

Flow Rate	Continuous operation at a set rate and direction
Volume over Time	Dispensing a desired volume over a desired time
Volume	Dispensing a desired volume at a set flow rate
Time Mode	Dispensing for a set time duration with a set flow rate
Volume with Pause	Dispensing a set volume over multiple cycles with defined pause time in between
Time with Pause	Dispensing for a set time duration over multiple cycles with defined pause time in between
Calibration	Allows each channel to be calibrated for dispensed fluid volume accuracy

SPECIFICATIONS



	75-0070	75-0510	75-0511	75-0512	75-0513	75-0514	75-0515
Control Type	Variable-Speed Digital	Variable-Speed Digital	Variable-Speed Digital	Variable-Speed Digital	Variable-Speed Digital	Variable-Speed Digital	Variable-Speed Digital
Minimum RPM	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Maximum RPM	100	100	100	100	100	100	100
Number of Channels	3	2	4	2	2	3	3
Number of Rollers	8	8	12	12	6	6	12
Max Flow Rate (mL/min)	35	35	24	24	43	43	24

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