

SliceMaster (Multi-site recording system)

Higher throughput, optimal sample use



www.scientifica.uk.com/slicemaster

SliceMaster Concept

Ideal for the Pharmaceutical industry Scientifica Ltd, together with Merck UK, have developed a semi-automated system which permits concurrent and independent recordings from up to eight brain slices, yet operated by a sole individual.

Therefore improving throughput, statistical design, and reducing animal use.



Speed and throughput of research

The SliceMaster solution permits concurrent and independent recordings from up to eight brain slices – all operated by just one trained operator. As a result this improves throughput, statistical design, data quality, costs efficiency and reduction in animal use.

In terms of analysis the system provides all the data acquisition and analysis software you need.

Thereby, increasing the user's data-handling productivity to keep pace with the increase in data generation capacity.

Two, flexible system options

Available in three versions: the "full version" with eight recording sites, the "half" version with four recording sites and a "mini" version with two recording sites.

This approach allows for an easy upgrade ensuring that a research team can explore the benefits of the SliceMaster approach before making a full investment or can add extra capacity as and when needed.

Support adherence - The UK Animals (Scientific Procedures) Act

This act is widely recognised as the strictest in the world and that, whenever possible, any strategy which minimises animal use, without compromising the quality of the scientific work should be pursued. Consistent with the three Rs (reduction, refinement, replacement; Russell and Burch, 1959).

The SliceMaster allows for the provision of up to 8 assays at a time - thereby meeting the requirements of the above act by creating repeatable and efficient testing.

Automated perfusion and temperature

The Programmable Perfusion System (PPS) boasts complete PC control allowing for "hands free" operation and therefore automation of your perfusion processes. Via Scientifica's free, Linlab software users can manually start and stop the flow, engage pinch valves and change the flow rate. Alternatively, experimental sequences can be programmed, saved and recalled.

Unlike other gravity led systems the PPS features 8 inflow and 2 outflow pinch valves. In addition, the PPS has been carefully shielded to prevent electrical noise interfering with sensitive recordings.

The SliceMate is a highly sophisticated temperature controlled chamber for biological samples, especially useful for electrophysiology tissue slice experiments.



System components

Scientifica offers differing versions of The SliceMaster to suit your research needs. One recording site consists of: 2 PatchStars, SliceMate, camera, LED, an anti-vibration table, a full control station and amplification/stimulator package.

The “full version” consists of eight-recording sites, “half version” is 4 recording sites and a mini version is 2 recording sites.

The “full version” comprises of the following components:

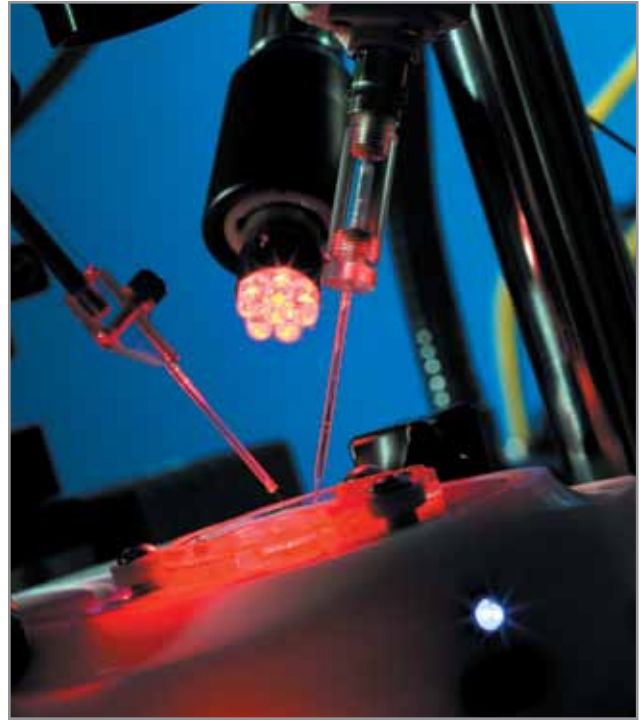
Product	Use	Manufacturer
SliceMate	Temperature controlled, continuously perfused recording chamber	Scientifica
PatchStar Micromanipulator	For positioning of the recording electrode	Scientifica
PatchStar Micromanipulator	For positioning of the stimulation electrode	Scientifica
Camera positioning manipulator	For the positioning a set of two cameras that display the chamber at two selectable resolutions	Scientifica
Programmable Perfusion System (PPS)	Fully automated and highly accurate perfusion system	Scientifica
Extracellular recording amplifier	Low-noise recordings of extracellular electric signals	NPI
High voltage stimulus isolation unit	Stimulus isolator module for application of extracellular stimulation	NPI
Audio Monitor unit and electrode resistance test unit		NPI
Two software controlled data acquisition systems		CED
Two Video and Quick Switch	To select the channel displayed on the monitors and data acquisition computer	Kramer
Remote operator console	Consists of a joystick control unit, 2 WINDOWS PCs and two high resolution monitors	Various

Ordering information

Please call your Scientifica representative to find out more about the SliceMaster solution, alternatively you can email them on info@scientifica.uk.com.



Benefits



Vibration isolation

In order to limit environmental disturbance it is necessary to isolate the experimental set-up from vibration.

To optimise laboratory space, four recording systems are contained on each vibration isolation table structure. High quality anti-vibration platforms are used to help maintain experimental viability.

By allowing four recording stations to be mounted on a single table, the SliceMaster concept means that far less space is required than for the more traditional approaches. This saves on lab space and costs.

World-renowned PatchStar manipulators

The PatchStar micromanipulator has been carefully engineered for low-drift operation (less than 1 micron in 2 hours).

It's stable, precise and reliable. Providing 20 mm of smooth travel in each axis (X,Y,Z and approach), with 20 nm resolution.

The fourth 'virtual approach' axis features a unique smart sensor which removes the need to manually measure and calibrate the crucial, approach.

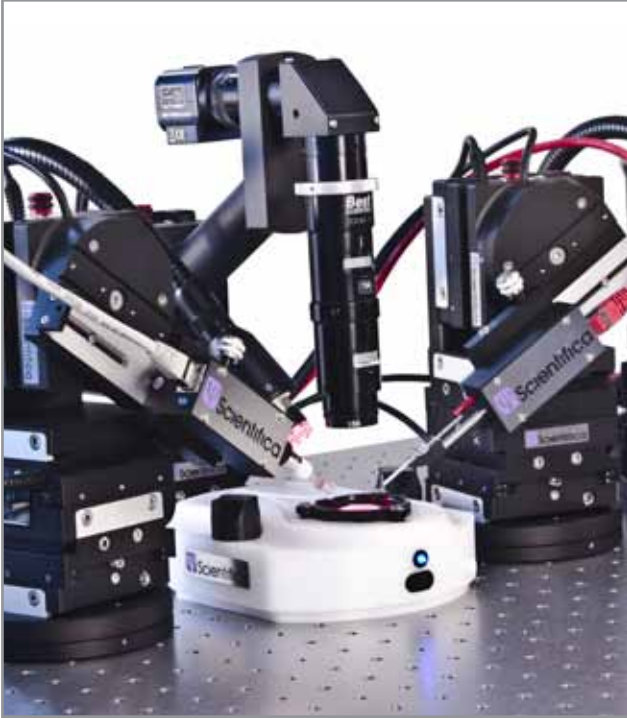
The modular design offers unrivalled flexibility and can be changed from left to right-handed operation in minutes.

The low-noise motors of the PatchStar are shielded within each axis, allowing users to accurately, and without interference, record even weak signals. This is crucial for users making single-channel recordings, improving accuracy and reliability of recordings.

"Over the years we have used a variety of manual, hydraulic, motorized and piezoelectric manipulators for our work. Since purchasing our first pair of PatchStar manipulators we have not looked back."

**Professor Farrant - University College London,
Department of Neuroscience**

Benefits



Vision system

It is important to be able to clearly see the tissue slice and electrodes so that accurate stimulator and recording alignment can be achieved.

The SliceMaster integrates a camera system positioned above each recording chamber. The camera can be positioned in X and Y as well as focused from the control station. LED illumination helps ensure contrast of the tissue as well as the electrodes. By simply pushing a button from the control station the operator can switch view between each and every recording chamber.

Full training & integration

Scientifica offer complete installation and training for the SliceMaster systems. This ensures a fast and accurate setup, as well as making sure that the user is skilled at using the system. In turn this enables rapid, quality data collection.

As explained, the SliceMaster is available in many variations. Please speak to our team about how it can be configured to suit your needs.

Call and speak to a Scientifica expert on +44(0)1825 749933 or email info@scientifica.uk.com



Control station

The control station is where the researcher can run all the experiments; from here the recording electrode and stimulator positioning, amplifier control, stimulation settings, data acquisition, perfusion settings and vision system can all be controlled via the push of a button or click of a mouse.

Simple, compact and fully integrated.





Programmable Perfusion System (PPS)

Scientifica's PPS combines full computer control of ten pinch valves and a high performance peristaltic pump, allowing the user to conduct fully automated and highly accurate perfusion.

The PPS is contained within electronically isolated stainless steel housing with a magnetic base for simple and stable mounting.



Amplifier and stimulator

The Stimulator and Amplifier is integrated into the Scientifica StAmp. The stimulator can output voltage or current and can be used in a variety of modes including tracking or triggered mode. The StAmp allows the user to command the stimulation protocol from the Control Station.

The Amplifier is built into the same 19" rack as the stimulator. Included in this system is a pre-amp headstage, as well as software controllable filters and audio monitor. This system then provides a easy to use user-configurable system suited to many recording requirements.

Warranty

Scientifica's success is founded on supplying superior support and application of our significant manufacturing experience.

We would therefore really value the opportunity to understand your applications better and to offer no obligation advice on equipment, configurations and compatibility.

All Scientifica instruments are sold with a two-year warranty giving you complete peace of mind. However, Scientifica's SliceMaster system, includes components from other companies, which offer varied warranties (please consult your sales specialist for more information).

This covers all defects in manufacturing and materials. In this unlikely event, Scientifica will remedy either by repair or replacement.

Our team of customer support engineers is dedicated to providing you with the very best advice and support, should you experience any difficulties with our products.

With all products we offer a complete installation support service.



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