

Panasonic MED64™ system

- 64 channel micro-electrode dish (MED) system
- Any of 64 micro-electrodes can be used as point of stimulation
- Ability to stimulate from up to four locations, two channel integrated biphasic stimulators with option to add two external stimulators
- MED64 conductor™ software features intuitive, easy to use experimental setup for stimulation and acquisition
- Data can be easily exported into text files for graphical presentation or further analysis
- Data acquisition speed and bandwidth suitable for wide range of research applications
- MED performer™ software (coming soon) makes conventional electrophysiology accessible to non-electrophysiologists

The MED probe

The MED64™ system is a versatile 64 channel electrophysiology recording and stimulation system. The heart of the system is the MED probe, a 64 micro-electrode dish system suitable for stimulation and recording for more details regarding the MED probe. Because of its unique design the MED probe provides not only field potential recording but each electrode can also be used as a point of stimulation.

The patented technology of the MED probe design results in low electrode impedance necessary to perform both stimulation and recording from the same electrode and still provide an excellent signal to noise ratio for examples of actual data recordings.

The materials used to construct the MED probe were selected to be biocompatible, suitable for acute slice work and chronic applications where cells or tissue slices are cultured directly on the MED probe. The transparent layers of the MED probe make it easy and convenient to visualize cells or tissue thus simplifying the process of selecting an electrode(s) for stimulation.

Research Applications

The MED systems™ make electrophysiology recordings from excitable tissues, both in vitro and ex vivo, accessible and convenient to researchers from a variety of disciplines. Researchers in disciplines such as toxicology, pharmacology and molecular biology can explore the effects of toxins, drugs and alterations in gene expression in a variety of applications.

Some applications include: 1) network physiology, study the effects of various treatments on a polysynaptic circuit, 2) patterned stimulation, vary the spatiotemporal stimulation patterns, 3) developmental electrophysiology, study the evolution of synaptic activity as cell and tissue cultures are grown directly on the MED probe, 4) drug and toxin screening, study the effects of known and novel compounds on mono- and polysynaptic circuits with well characterized pharmacology and physiology such as the dentate gyrus > CA1 > CA3 circuit found in the hippocampal slice. Advanced electrophysiology such as current source density (CSD) analysis and Fourier transforms can be used to study intra- and interregional processes within brain slices.

System Hardware

The MED connector links the MED probe to the MED64™ integrated amplifier and stimulator. The MED64™ system controller and conductor software and/or performer software are used to control all stimulation and acquisition processes for further details. The MED64™ amplifier enables simultaneous recording at sampling rates of up to 20 kHz from all 64 micro-electrodes. The broad band width (0.1 Hz to 10 kHz) maximizes the faithful amplification of both slow and fast electrophysiological signals.

Complete turnkey systems using the MED64™ system can be configured to suit your research application. Additional equipment is required to successfully perform these experiments from start to finish, for more details or contact our customer service department for further assistance.

Specifications

MED64™ connector:

Contact Resistance (with MED probe)	< 30 mΩ
Printed Wiring	6 layer (rejects hum noise by a multi-shield structure)
Dimensions, W x H x D	95 x 116 x 28 mm (3.7 x 4.6 x 1.1 in)
Weight	150 g (5.3 oz)

64-Channel Integrated Amplifier:

Amplifier Block:

Number of Channels	64
Input impedance	100 MΩ
Output Impedance	470 Ω
Low Cut-Off Filter	0.1, 1, 10, 100 Hz (4 settings, 12 dB / oct)
Gain	x 1000 (60 dB)
Band Width	0.1 Hz ~ 10 kHz (+0 dB ~ -3 dB)
Internal Noise Level	< 4 mV

Stimulus Amplifier Block:

Output Format	Constant current
Max. Output Current	2 mA
Output Current Adjustment	x1 (F); x0-x10, 0.1 step (v)
Power Supply	AC 120 V, 50-60 Hz U.S.A.; AC 220, 50 Hz Europe
Power Consumption	60 W
Weight	12 kg
Dimensions, W x H x D	483 x 186 x 450 mm (19 x 7.3 x 17.7 in)

MED64™ Specialized Software: MED64 conductor™, MED64 performer™ :

No. of Input Signals	64
Max. Sampling Rate	20 kHz/ch
Number of Stimulation Output Channels	4 (analog output)

Catalog No.

CGS 8000.74
CGS 8001.74
CGS 8002.74
Descontinuado
CGS 8003.74
CGS 8004.74
Descontinuado
CGS 8005.74

Product

MED64™ connector
4-Channel Integrated Amplifier, 110 VAC, 60 Hz
4-Channel Integrated Amplifier, 220 VAC, 50 Hz
MED64 conductor™ Software
MED64 performer™ Software
MED64™ system Controller