If you believe your job is to make new discoveries then...

...discover the classic EPC 7
- High resolution recordings
- Studies of exocytosis (by monitoring changes in cell membrane capacitance)
- Whole Cell voltage clamp and current clamp studies
- Recordings from artificial membranes

Features of the classic EPC 7
- High time resolution and low noise for single-channel and whole-cell recordings
- Range-changing capability of the headstage
- Extremely wide bandwidth available from the Current Monitor circuitry
- Integrated transient cancellation and series-resistance compensation functions
The letters EPC stand for Extracellular Patch Clamp, the method introduced by Neher and Sakmann (1976) for recording the currents in a small patch of membrane under voltage-clamp conditions. The EPC 7 represents roughly the seventh in the series of patch clamp designs in use in the Göttingen laboratories of Neher and Sakmann since their initial experiments and produced by HEKA as the first manufacturer of patch clamp amplifiers in the world (EPC 5). In the intervening years a number of technical advances have occurred, most notably the discovery of the "gigaseal" by E. Neher (1981), which have made the words extracellular and patch excessively restrictive in describing this instrument. The advantage of the "classic" EPC 7 is that intracellular recordings can be made with the same type of recording setup as used for patch recording from the cell surface, and cell-free membrane patches are also used. Since many years the EPC 7 "classic" is manufactured in the same established way. This is a testament to the excellent design of this unique and versatile amplifier.

**Head Stage**
The input circuitry is contained in a hybrid integrated circuit. Current measuring resistors:
- 50 GΩ (high range)
- 500 MΩ (medium range)
Largest measurable currents:
- 20 nA (500 MΩ range)
- 200 pA (50 GΩ range)
Noise measured with 4-pole Butterworth or Bessel filter:
- DC to 1kHz: 50 fA
- DC to 3kHz: 100 fA
- DC to 10kHz: 300 fA
Input connector:
- Standard BNC
Other connections:
- Ground sense input, Pipette command output.

**Series Resistance Compensation**
Automatically determined from transient cancellation controls. Rs determination: 0 - 90%

**Pipette offset**
Manual adjustment of the pipette offset in a range of ±50 mV.

**Current Monitor Signal**
Gain:
- 0.5 to 1000 mV/pA, switch-selected
Bandwidth:
- 100 kHz (medium range)
- 60 kHz (high range)

**Current Clamp**
Commanded CC:
- 1 pA/mV input; up to 10 nA

**Capacitance Compensation**
Manual adjustment of the fast and slow capacitance cancellation.
- C-fast: 0 to 10 pF, calibrated
- 0.5 to 5 μs time constant
- C-slow: 0.2 to 10 pF, calibrated
- 2 to 100 pF, calibrated
Series conductance adjustment:
- 0.01 to 1 μS, calibrated

**Noise Monitor Facility**
LCD displays RMS current for checking background noise.
Bandwidth: 300 Hz to 3 kHz
Range: 0 to 200 mV RMS referred to Current Monitor Signal

**Related Products**

**PULSE / PULSEFIT**
Patch clamp data acquisition and analysis software for Macintosh computers.

**X-CHART**
Software implemented chart-recorder for Macintosh computers and PowerPC®.

**TIDA**
Electrophysiological data acquisition and analysis for personal computers under MS-Windows®.

**PIP 5**
Temperature controlled micro pipette puller.

**EPC 9**
The fully computer controlled patch-clamp amplifier with built-in interface board.

**Service & Support**
As the first manufacturer of patch clamp amplifiers in the world HEKA knows the needs of scientists. We provide exceptional pre and post sales customer support from our trained international sales representatives and our own technical support advisors. With thousands of high performance hardware and software products in daily use worldwide we understand all aspects of data acquisition systems not just the software. To avoid compatibility headaches you can get everything from signal conditioning and acquisition to analyzing and data backup systems from one supplier, HEKA Elektronik.

Digitimer Ltd
37 Hydeway
Welwyn Garden City
Hertfordshire AL7 3BE
England

Phone +44 (0)1707 328347
Fax +44 (0)1707 373153
Web Site www.digitimer.com
Email sales@digitimer.com
technical@digitimer.com

We reserve the right to effect technical changes as development progresses. Special versions are available on request. Further technical data are provided by a detailed description, which is available on request. A guarantee of one year applies on all instruments.