

# PATCHMASTER

## Overview on Improvements

*PATCHMASTER was designed to support our EPC 10 Single, Double, Triple, and Quadro patch clamp amplifiers employing a new, more versatile software architecture. In addition, many improvements which have been suggested to us and could not easily be implemented into PULSE are now available with PATCHMASTER.*

*Although in some respects PATCHMASTER “looks” similar to PULSE, it is a completely new program, following an improved strategy for process handling and programming, partial support of parallel task processing, removal of implicit functions and full capabilities for task automation.*

*Please let us draw your attention to the following improvements of PATCHMASTER, from which you may benefit:*

### Control window

The new Control window provides direct access to all Pulse Generator sequences and all Protocols. This is the new center of the program used to start the various tasks manually.

### Protocol Editor for automation

A complete experiment can be automated and standardized, including incorporation of feedback from online analysis or external devices.

### Extended Online Analysis

An arbitrary number of online functions and methods can be defined and saved. Even complex calculations are now possible. Online analysis methods can be directly linked to acquisition sequences.

### Two Online Analysis windows

Up to 12 graphs can be displayed in two different Online Analysis windows. For example, one window can be used to display series derived analyses such as IVs, and the other for display of time lapse data.

### Chart display

The online analysis can be used for a chart type display to show the overall development within an experiment.

### Rapid switching between current and voltage clamp

It is possible to switch the recording mode within a high time resolution recording of a data trace.

### More channels

PATCHMASTER provides up to 32 channels for stimulation, acquisition, and online data processing.

### Extended trigger possibilities

Up to 16 trigger outputs can be defined like a stimulation channel.

### Individual timing for different channels

Channels can have completely different timing and pulse patterns. This allows easy setup of complex stimulation patterns for multiple channels.

### Advanced DA channel scaling

DA channel output can be scaled using lookup tables or calculated from user defined functions. This provides a flexible tool for generation of arbitrary waveforms. In addition, precalculated waveforms can be loaded from file.

### Data compression

For all channels, individual data compression factors can be specified to reduce the amount of stored data.

### Online processing of raw data

Acquired data traces can be processed by mathematical functions to compile additional derived data traces.

### High throughput acquisition modes

PATCHMASTER supports two different high throughput acquisition modes which allow automated recording from several recording sites (probes). These functions are used in combination with an EPS 16 probe selector.

**Global parameters for sequence editing**

For definition of a pulse generator sequence, global parameters can be used, e.g. to define a duration of a segment or the amplitude of a stimulation. If these parameters are used in multiple segments or sequences, all locations can be edited by changing a single global parameter.

**Master / Slave mode**

PATCHMASTER can be synchronized with another instance of PATCHMASTER or with FITMASTER from within a protocol. This allows e.g. more complex analysis on the fly.

**Extended Lock-In extension**

Simultaneous capacitance measurements on multiple headstages of a patch clamp amplifier (EPC 10 Double, Triple, and Quadro), sine and square wave techniques, and On-Cell capacitance measurements at high sine wave frequencies are now possible.

**Photometry extension**

High time resolution ratio measurements and online calculation of ion concentration is now fully supported. The stimulation sequences and analysis of fluorescence raw data is now automated. Full support of background subtraction.

**Multiple Telegraphing Amplifiers**

More than one telegraphing amplifier can be supported by using multiple lookup tables.

**Hardware exclusively supported by PATCHMASTER**

- iTEV 90 mult-electrode clamp amplifier
- EPC 10 USB family of patch clamp amplifiers
- EPC 10 patch clamp amplifiers on Mac OS
- EPC 10 Triple and Quadro patch clamp amplifiers
- EPC 10 PLUS family of patch clamp amplifiers
- EPS 16 Probe Selectors

Please feel free to visit our web site and download a complementary demo version of PATCHMASTER or have a look at the PATCHMASTER Reference Manual or Tutorial.

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