Axopatch 200B Patch Clamp Amplifier **Molecular Devices**

The **Axopatch 200B** patch clamp offers the lowest-noise patch-clamp amplifier technology. The open circuit (amplifier) noise in patch-mode has been reduced to unprecedentedly low levels: < 15 femtoAmps (rms) below 1 kHz bandwidth, < 60 femtoAmps (rms) below 5 kHz bandwidth, and < 130 femtoAmps (rms) below 10 kHz bandwidth, all measured with an 8-pole Bessel filter. Noise is still low (145 femtoAmps rms below 10 kHz bandwidth) with a pipette holder attached. This translates into lower noise during actual recordings; this noise performance is achieved in part by cooling the input field-effect transistors inside the headstage to well below 0° C.

Better noise performance is only part of the story. The redesigned, slim headstage improves electrode access to the preparation by making it easier to fit under your microscope. We now include BOTH whole-cell ranges (previously available only in two separate headstages) in one headstage.

The 200B includes all of the features of the 200A, and a few more. Enhancements include three recording configurations in a single headstage (one patch and two whole cell ranges, with capacitance compensation ranges of 100 pF and 1000 pF), increased voltage and current command ranges (to ±1V) for electrochemical measurements, built-in capacitance dithering capability for capacitance measurements, and addition of series resistance compensation to the current clamp circuitry to improve performance. Seal Test now provides current steps in current clamp mode as well as voltage steps in voltage clamp mode. Leak Subtraction is now more sensitive in the most important resistance range. The recording bandwidth has been doubled to up to 100 kHz. Command and bandwidth ranges are larger. Series Resistance compensation is now active in current clamp as well as in voltage clamp mode to enable bridge balance to be used.

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