Tecella

pico

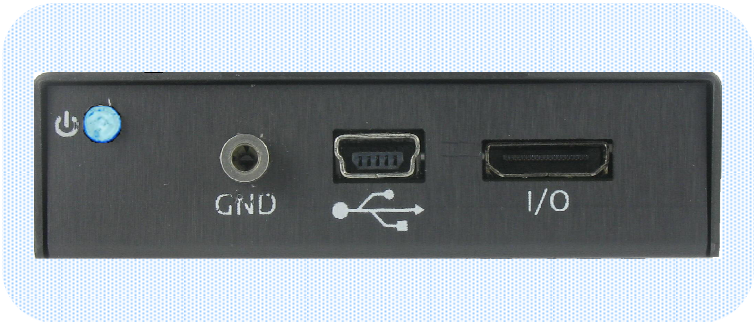
- + Fully featured 1-channel amplifier
- + USB powered
- + Voltage Clamp and Current Clamp
- + Series resistance compensation
- + Multiple capacitance compensations
- + Very small size
- + Integrated headstage and digitizer
- + Under 1 Watt power consumption
- + Low Noise

Pico is a full-featured, low-noise patch clamp with an integrated digitizer and headstage. Pico is ideally suited for whole cell (Vclamp and Iclamp) and single-channel (patch, planar lipid bilayer and synthetic nanopore) recording, as well as cellular electrochemistry.

Clean Head Switching™ technology allows software controlled switching between voltage clamp and current clamp, or between multiple feedback resistors, without introducing any artifacts. This enables one Pico to support a wide range of applications including Whole Cell, Single Channel, Multi-Cell, Bilayers, Electrochemistry, and Current Clamp.

In voltage clamp mode, the Pico provides 5 feedback gain resistors ranging from 10 MΩ to 10 GΩ. In current clamp mode, the Pico provides 3 range settings from ±2 nA to ±200 nA.

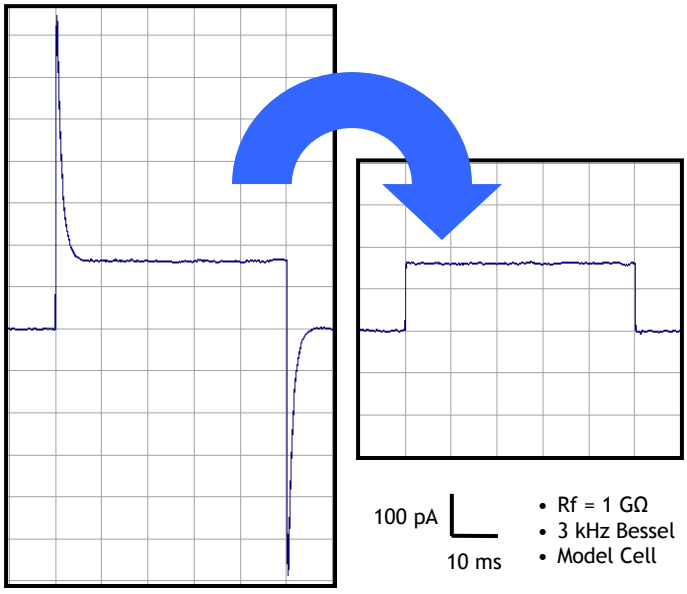
Internal Model Cell allows for self calibration of the experiment setup, as well as, rapid post-experiment amplifier validation.



Software support for the Pico includes TecellaLab acquisition software, WinWCP software, and LabView. SDK / API is provided for custom development and system integration.

RMS noise is 1 pA at 1 GΩ gain setting.

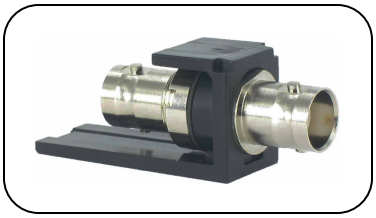
The Patented Spread Frequency Compensation can automatically compensate any arbitrary capacitance profile in approximately 3 seconds.



USB cable is all that is needed to power-up, control, and record from the Pico.

Accessories

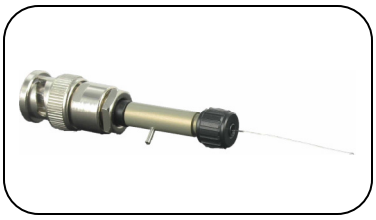
USB Cable



Extender

BNC Cable

Model Cell



Electrode Holder

I/O Box

I/O Cable

U.S. Patent No. 7,741,829

Specifications

Integrated Digitizer	40 kHz sampling rate 16-bit A/D (18-bit internal resolution) Stimulus voltage ranges: ±250 mV ±2000 mV Zap voltage range of ±1000 mV
Feedback Gain Settings	10 MΩ, 100 MΩ, 1 GΩ, 3.3 GΩ, 10 GΩ
Low RMS Noise (DC to 3kHz)	0.25 pA @ 10 GΩ, 1.0 pA @ 1 GΩ, 7 pA @ 100 MΩ
Filters	Programmable 2-pole Low-Pass Filter (analog hardware circuit) Digital Filter available in TecellaLab software
Compensations	Up to 4 Capacitance Compensations Cfast x 1, Cslow x 3 0-100 pF per compensation Series Resistance Compensation Offset Compensation (±250 mV) Optional Active Leak Compensation
Current Clamp	±2 nA range with 1.25 pA resolution ±20 nA range with 12.5 pA resolution ±200 nA range with 125 pA resolution
I/O	Digital In x 1 Digital Out x 8 General Purpose DAC x 4 0-5 V 10-bit resolution
Computer Interface	USB
Software	TecellaLab software, with Data Export to ATF, tab-formats WinWCP LabView SDK/API available
Mechanical & Power	USB powered. Does not require a separate power supply. 5.8 in x 2.4 in x 0.7 in (14.5 cm x 6.2 cm x 1.7 cm) 3.8 ounces (110 grams)
Power Consumption	0.8 Watts

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