

## DATA SHEET

# Axon Digidata 1550 Data Acquisition System

A high-resolution, low-noise digitizer



The Axon™ Digidata® 1550 Data Acquisition System is the next generation of low-noise digitizers from Molecular Devices®. It is a high-resolution, low-noise digitizer intended for precision scientific applications. It is particularly designed for electrophysiology experiments, to send and receive signals from microelectrode amplifiers, and to interact with peripheral instruments such as solution exchangers.

## Lower noise

The low digitization noise is maintained in this digitizer. Analog input channel crosstalk is prevented by the use of separate analog-to-digital converters (ADCs) for each of the analog input channels. Additionally, the use of the latest manufacturing processes and precision components contribute to an extremely low-noise 16-bit signal.

## Superior features

Eight independent analog output channels can stimulate eight cells at once for higher throughput or synaptic network experiments. All of the eight analog input channels can be simultaneously digitized at the highest sampling rate of 500 kHz for maximum throughput. Multiple triggering options are available via hardware and software.

## Easy setup

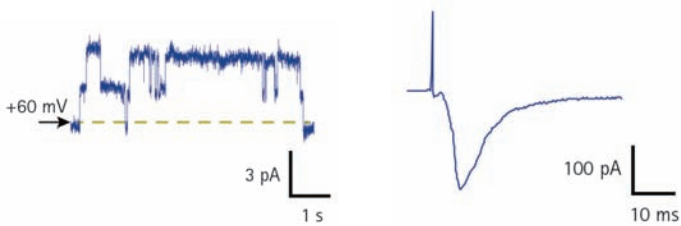
Simply load the software and plug into a USB 2.0 port to connect to desktop or laptop computers. Connect the power cord to the wall socket and then to the rear panel AC power input connector. All signal connections are conveniently accessible on the front panel.

## KEY FEATURES

- Complete data acquisition system
- Low noise
- Fast sampling rate
- Increased analog outputs
- USB 2.0 communication supports laptop computers
- Includes Axon AxoScope 10.4 Data Acquisition Software for Windows

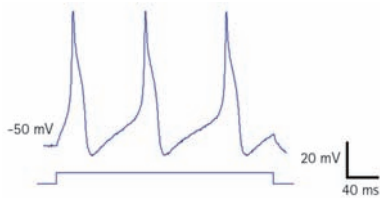
## Quality software

Recordings can be made right out of the box with the included Axon™ AxoScope 10.4 Software for Windows operating systems. Axon AxoScope 10.4 Software is a data acquisition program that provides continuous (gap-free) event detection and oscilloscope modes of operation. Ratiometric dye measurements from PMTs are also supported. Offline cursor-based measurements and statistics are displayed in a spreadsheet. Axon AxoScope 10.4 Software records ABF 2 binary data files and optionally exports ASCII text files.

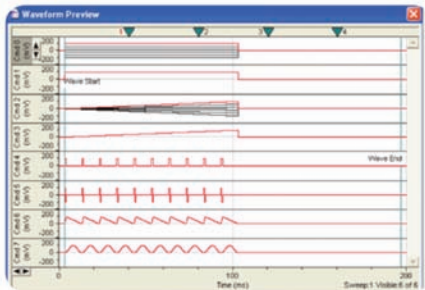


**Single channel recording.** Single channel recordings from a membrane patch excised from an HEK 293 cell transfected with  $\alpha$ -subunit of olfactory cyclic nucleotide-gated channel. Membrane was clamped at +60 mV in the presence of 2  $\mu$ M cGMP.

**Whole-cell current recording.** An evoked excitatory postsynaptic current recording from a corticostriatal neuron in a brain slice preparation. The stimulation electrode was placed in the layer V/VI region of the cortex. Membrane was clamped at -70 mV.



**Action potential recording.** Action potential recordings from a neuron in an isolated dorsal root ganglia of a rat brain. Action potentials were evoked by injecting a current step of 110  $\mu$ A. The resting membrane potential was at -50 mV.



**Waveform preview.** Eight analog waveforms can be generated simultaneously in Axon pCLAMP 10.4 Software



**Real-time control panel.** The included Axon AxoScope 10.4 Software offers optional real-time control of analog and digital outputs.

### Performance specifications

Analog outputs	8 channels, 8 DACs, $\pm 10$ V range, 16-bit resolution, 1 Hz–500 kHz sampling rates.
Analog inputs	8 channels, 8 ADCs, $\pm 10$ V range, 16-bit resolution, 1 Hz–500 kHz sampling rates.
Digital outputs	8 bits, BNC and DB-25F connections
Digital triggers	Start input, tag input, scope output
Telegraphs	4 BNC input channels or via internal Windows messaging for supported software
Analog output impedance	< 0.5 $\Omega$
Analog input resistance	> 1 M $\Omega$
Digital output current	$\pm 4$ mA source
Analog crosstalk	< 1 mV Avg <sub>p-p</sub>
Digitization noise	< 1 mV Avg <sub>p-p</sub>

### General specifications

Dimensions (in.)	4.3 (H) x 19 (W) x 14.3 (D)
Dimensions (cm)	10.9 (H) x 48.3 (W) x 36.3 (D)
Weight	8 lbs. (3.6 kg)
Communications	USB 2.0
Rack use	Standard 19" rack-mount (2U) with handles
Power	100–240 Vac 50–60 Hz, 115 watts (max.)
Safety	CE marking (Conformité Européen)
Computer	PC with 2 GHz CPU (or faster), Windows 7 (32-bit or 64-bit), 2 GB RAM (or more), 1024 x 768 display, CD-ROM drive, 3 high-speed built-in USB 2.0 ports
Software	Axon AxoScope 10.4 Software (included) Axon pCLAMP® 10.4 Software (optional)

### Ordering information

Axon Digidata 1550 Data Acquisition System  
Axon Digidata 1550 Digitizer, power cord, USB 2.0 cable,  
Axon AxoScope 10.4 Software CD, User guide (electronic),  
Quick start guide (printed)

### Part Number

DD1550

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