Axon Cereport Adapter User Guide

Probe adapter for Blackrock 96-channel Utah Array

Product Datasheet (Version 1.1)

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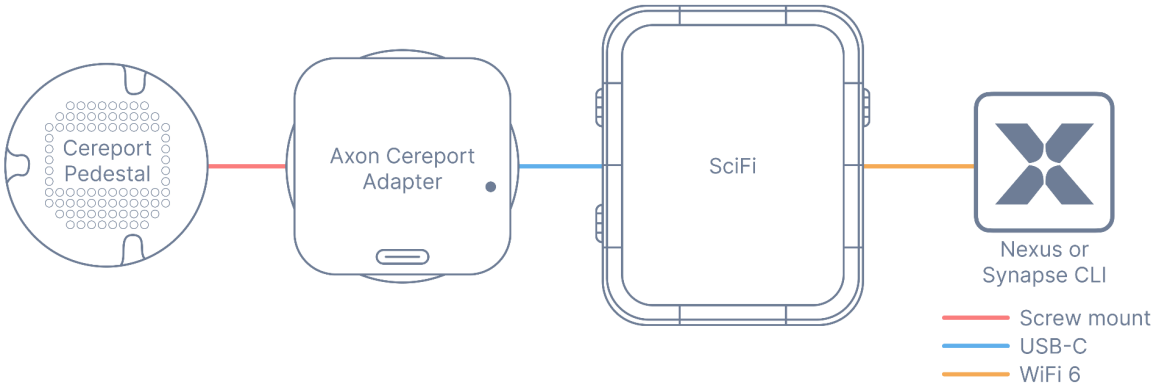
Overview

The Axon Cereport Adapter is a combined digitizer and USB 3.2 Gen 1 serializer designed to connect a 128 pin Cereport Pedestal to a SciFi wireless headstage. It performs low-noise digitization of the neural signals from the Utah Array using the Science Nixel512 ASIC, and exposes a standardized axon interface to the SciFi headstage. There are 96 broadband channels available from the 128 pin pedestal, following the typical electrode layout of the 96 channel Utah Array.

Key Features

- Less than 4.5 μV_{RMS} noise at electrode input
- Small and lightweight footprint ideal for small model organisms
- Less than 200 mW power consumption for maximum experiment duration
- Robust electrical contact between pedestal and adapter minimizes device wear
- LED indicator for convenient device diagnostics

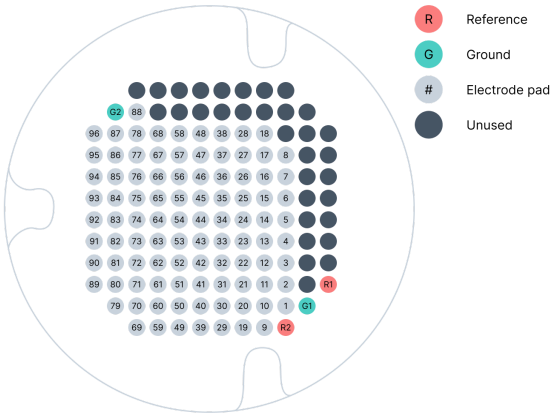


Summary Table

Adapter characteristics	Overall dimensions	30 x 30 x 15 mm^3
	Total weight	13.5 g
	Electrode interface	128 pin Cereport LGA
	Power consumption	Less than 200 mW
	Cable interface	USB-C
Recording characteristics	Recording channels	96
	Recording mode	Single-ended
	Bandwidth	3.8 Hz – 14 kHz (Configurable)
	Gain	13 – 200 V/V (Configurable)
	Input referred noise	4.5 μV_{rms} min.
	Bit depth	10 – 16 bits (Configurable)
	Sampling rate	2 – 32 kHz (Configurable)
	Input capacitance	6.8 pF
	Data throughput	Less than 130 Mb/s

Hardware Requirements

- Blackrock Utah Array or Neural Signal Simulator with 128-pin pedestal (see below)
- A SciFi wireless headstage.
- A WiFi network: capable of WiFi 5 (802.11ac) or later. To get best performance, use WiFi 6 (802.11ax 160MHz).
- A PC with synapsectl software installed.



128 Channel Pedestal Layout for Reference
Top View

Usage

The Axon Cereport Adapter is designed for use with a SciFi headstage. Before recording neural data, it must be connected to power and configured with a set of channels with the following directions.

Thumb Wheel

Connecting

1. Ensure your SciFi headstage is powered on by holding the right button down for 3 seconds, and the screen is displaying correctly.
2. Connect the Axon Cereport Adapter with the SciFi headstage using a USB-C cable.
3. After the adapter is powered, the LED will glow for 5 seconds to indicate the boot sequence.
4. After booting, the indicator LED will blink green to indicate the device is powered. If the LED does not begin blinking green, there is a device fault.
5. Place the adapter on a Blackrock 128-pin pedestal connected directly to a Utah array (or to a Blackrock Neural Signal Simulator if you want to test, debug, or evaluate noise) and ensure it is sitting flat.
6. Rotate the body of the adapter clockwise until the mating features align. You should feel it “click” into place and be unable to rotate the body of the adapter in either direction.
7. Connect the electrical contacts by rotating the thumb wheel clockwise until the indicator LED changes to solid green (tightening the device further may damage the equipment).
8. The adapter is ready for use once the indicator LED is solid green.

Configuring

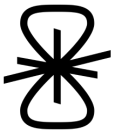
The Axon Cereport Adapter uses the Science Nixel 512 neural recording chip as its functional core. Please refer to the Synapse peripheral documentation for all available configuration options, including sample rate, bit depth, and filter cutoff frequencies. The channel configuration information is described in a Synapse JSON file downloadable here, which can be used with both Nexus software and the Synapse CLI.

Recording

Detailed information regarding recording sessions can be found in the usage section of the SciFi, Nexus, or Synapse-CTL documentation.

- To begin a recording session via the SciFi headstage, long press the **Up** button.
- To end a recording session via the SciFi headstage, long press the **Down** button.

Contact Information



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