SciFi 2 Datasheet

High bandwidth neural recording headstage with display

Product Datasheet (Version 1.0)

Science Corporation
1415 Webster St.
PO Box 117
Alameda, CA 94501

www.science.xyz/technologies/scifi

Table of Contents

Disclaimers

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

RF Exposure Information

To maintain compliance with the FCC radio frequency exposure limits, body proximity to the antenna shall not be less than 20 cm during normal operation.

Adapters

Omnetics, Cereplex, Cereport, and Intan are trademarks of their respective owners. Science Corporation's adapters are not affiliated with these companies.

Overview

SciFi 2 is an ultra high-bandwidth neural recording device built for high channel count BCI research and neural engineering applications. It supports 1,000+ channel configurations, enabled by 2.5 Gbps of recording bandwidth, on-device compute and storage, and WiFi wireless connectivity for ultra-low latency data processing and telemetry. SciFi 2 takes full advantage of the Synapse OS for flexibly configurable data pathing and processing, letting you build custom machine learning models or neural engineering tools called Synapse Apps, which can be deployed directly on device.

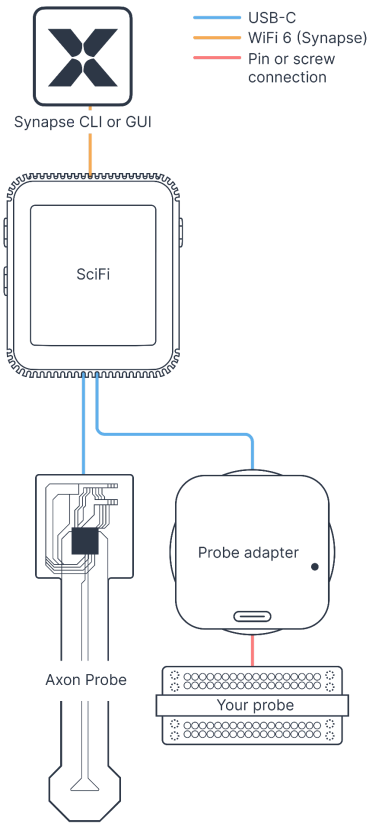
Key Features

For your experiment:

- 1,000+ channel broadband neural recording (2.5 Gbps of allocatable bandwidth)
- Up to 40 kHz sample rate
- Compatible with Science Axon Probes, Omnetics, and Cereport Axon adapters
- Supports Synapse Apps for on-device, closed-loop processing

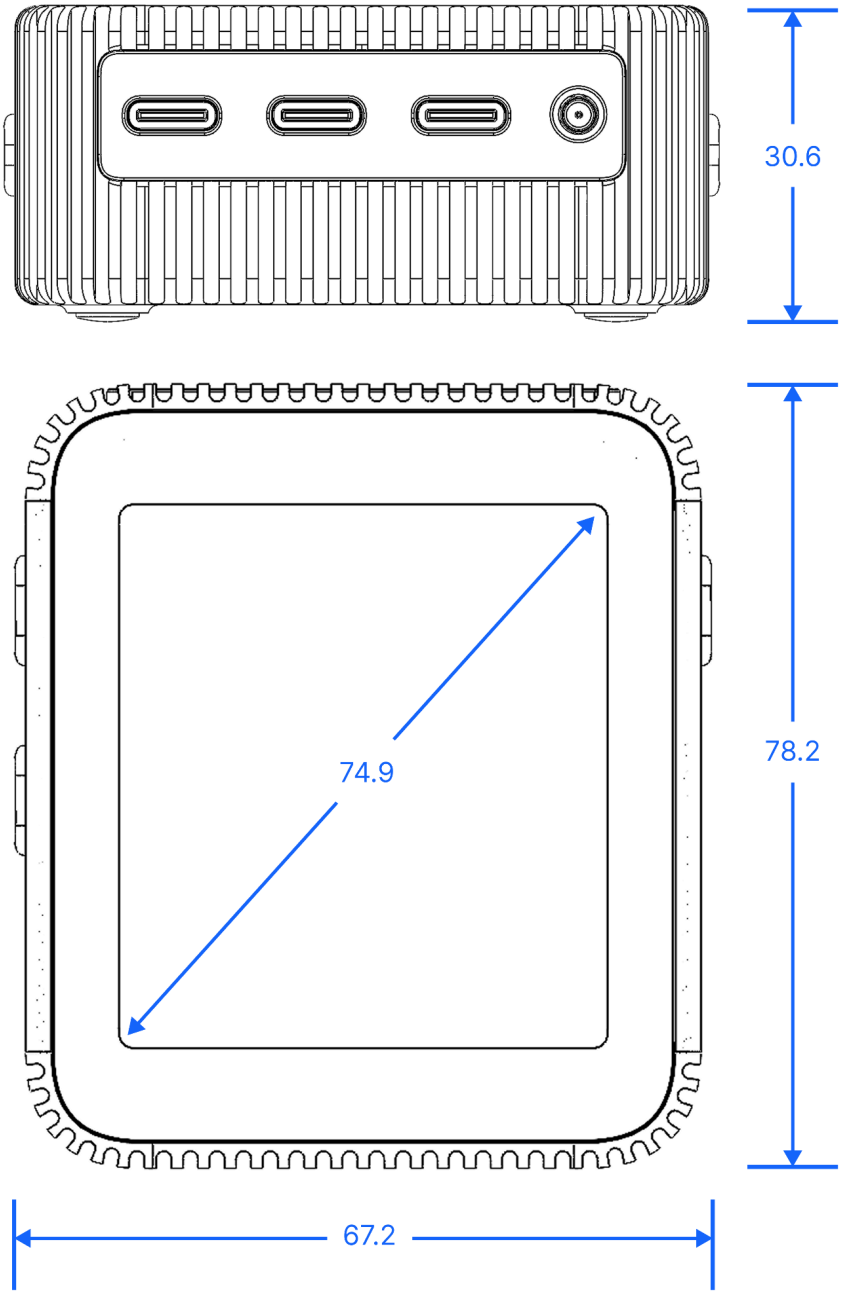
Hardware:

- WiFi 6 connectivity with speeds up to 2.4 Gbps
- High contrast AMOLED display for detailed status and experiment information
- 5000 mAh battery
- 1TB + 128GB of internal high speed storage
- Powered by Qualcomm Dragonwing Q6
- 3 USB Type-C® ports for connectivity
- Magnetic low-profile charging dock



Physical Dimensions

The SciFi 2 headstage measures 78.2 mm top to bottom, 30.6 mm front to back, and 67.2 mm side to side.



All dimensions shown in mm

Summary Table

Body	Dimensions	78.2 x 30.6 x 67.2 mm
		3.08 × 1.20 × 2.65 in
Display	Display technology	AMOLED
	Resolution	1080 x 1200
	Brightness	400 nits (typ)
	Contrast	10,000:1 (min)
	Diagonal	74.9 mm (2.95 in)
Wireless Connectivity	WLAN	802.11 ax 160 MHz (5 GHz only)
	Max PHY rate	2.4 Gbps *
	Iperf: Max up-link TCP	1500 Mbps *
	Iperf: Max down-link TCP	500 Mbps *
Probe Connectivity	Physical interface	USB-C
	USB Spec	USB 3.2 Gen 1 (5 Gbps)
	Compatible probes	Science Axon Probes or probe adapters
Battery	Battery capacity	5000 mAh
	Safety features	Undervoltage, overcurrent, JEITA battery charging
Storage	Storage capacity	1TB + 128GB
Platform	OS	Linux Ubuntu

* Ideal conditions: minimal RF noise and interference and local WiFi router with minimal traffic.

Channel Count and Bandwidth

SciFi 2 supports a wide array of channel configurations, made possible by 2.5 Gbps of recording bandwidth you allocate across probes, channel count, sample rate, and bit depth to suit your experiment (*data rate = channel count × sample rate × bit depth*).

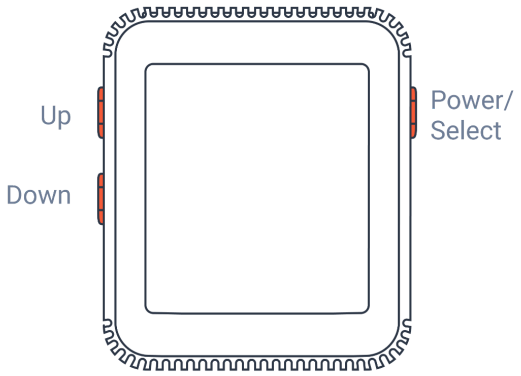
Hardware Requirements

In order to make use of SciFi, you will require the following:

- USB-C data cable (5 Gbps minimum).
- 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.
- A Science Axon Probe.

Interfaces

Up/Down	Navigate between options on the AMOLED screen.
Power/Select	Holding the power button serves to turn on and off the device, with short presses serving as a select key.



Contact Information

Science Corporation
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https://science.xyz/support/

This preliminary product datasheet may change without notice.