kernel

FOR RESEARCH USE ONLY

12-Module DevKit Technical Specifications

Inspired by our Flow2 system, the 12-module DevKit offers a more flexible and adaptable approach to neuroscience experimentation and data collection. By employing a soft cap design that allows users to customize and install optical modules and EEG electrodes as desired, researchers can optimize sensor placement for their specific research goals.

Time-Domain fNIRS

Time-Domain measurements have improved depth sensitivity and reduced susceptibility to artifacts compared to traditional CW-fNIRS.

Sampling Rate

With our industry-leading 3.5ms integration time, we are able to image over the whole cortex at a rate of 3.76Hz and sample the heart rate at 7.5Hz.

Output Format and Metrics

Standard Analyses for Included Reference Tasks

With all Kernel tasks that ship with the system, simple behavioral and brain analyses reports are available.

Automated Quality Control

We offer both a basic and a detailed report on the signal quality of each collected dataset.

Data Download

Data can be downloaded at various stages of preprocessing as SNIRF files (Shared Near-Infrared Spectroscopy Format, see specification). Learn more about how to use DevKit data here.

12
Optical Modules

each with **3** Dual-Wavelength Sources (690nm/905nm)

and **6** Time Resolved Detectors

200+
Within-Module Channels with

8.5 - 27mm
Source-Detector Separation

Up to 60mm
Between-Module Channels

> 100dB
Dynamic Range

6
EEG Electrodes

1kHz
EEG Sampling Rate

Headgear
Custom
Ships with soft cap

Optode Style
Modular

Weight
1.2 kg

Power Supply
USB-PD
Delivered over USB-C

Power Consumption
15W Max

Power & Data Cable
Up to 10’ USB-C

Data Storage
Data streamed to acquisition PC at rate of 300MB/min of recording

Data Transfer
USB 2.0

Laser Classification
Class 1 (FLPPS 21CFR1040.10)

kernel

FOR RESEARCH USE ONLY

3-Module DevKit Technical Specifications

Inspired by our Flow2 system, the 3-module DevKit offers a more flexible and adaptable approach to experimentation and data collection. By employing a design that allows users to customize and install optical modules as desired, researchers can optimize sensor placement for their specific research goals.

Time-Domain fNIRS

Time-Domain measurements have improved depth sensitivity and reduced susceptibility to artifacts compared to traditional CW-fNIRS.

Sampling Rate

With our industry-leading 3.5ms integration time, we are able to image at a rate of 15.9Hz

Output Format and Metrics

Standard Analyses for Included Reference Tasks

With all Kernel tasks that ship with the system, simple behavioral and brain analyses reports are available.

Automated Quality Control

We offer both a basic and a detailed report on the signal quality of each collected dataset.

Data Download

Data can be downloaded at various stages of preprocessing as SNIRF files (Shared Near-Infrared Spectroscopy Format, see specification). Learn more about how to use DevKit data here.

3
Optical Modules

each with
3
Dual-Wavelength Sources (690nm/905nm)

and
6
Time Resolved Detectors

50+
Within-Module Channels with

8.5 - 27mm
Source-Detector Separation

Up to 60mm
Between-Module Channels

> 100dB
Dynamic Range

Headgear
Custom
Ships with headband

Optode Style
Modular

Weight
0.2kg

Power Supply
USB-PD
Delivered over USB-C

Power Consumption
7W Max

Power & Data Cable
Up to 10’ USB-C

Data Storage
Data streamed to acquisition PC at rate of 75MB/min of recording

Data Transfer
USB 2.0

Laser Classification
Class 1 (FLPPS 21CFR1040.10)