Intsy 128 channel bioamplifier module: Bill of Materials

(compiled Jon Erickson Feb 26 2025)

Item	Vendor (part #)	Unit Cost (USD)	Quantity (for 128 ch)
RHD2132 headstage	Intan Tech (C3314)	920	4
SPI cable adapter board	Intan Tech (C3430)	111	4
36 pin-wire adapter	Intan Tech (C3420)	230	4
Teensy 3.6 microcontroller	N/A [1]	20	1
TI LVDS-CMOS driver receiver SN65LVDT41PW	Mouser (595-SN65LVDT41PW)	18	2
RN-42 Bluetooth module Silver mate	Sparkfun[2] (retired part)	25	1
ADXL335 analog 3-axis accelerometer	Adafruit (163)	15	1
JST switch	Adafruit (1863)	3	1
Bypass caps: 0.1 uF; 1 nF	Mouser (80-C320C104K5R; 75-564R60GAD10)	4 (of each value)	1
USB isolator	Adafruit (2107)	35	1
LiPo battery (3.7 V; 2500 mAh) [3]	Adafruit (328)	15	1
Custom PCB	Seeed Studio or Advanced Circuits	10	1
3D printed enclosure	Local 3D printer	~20	1
Nylon screws and nuts (various sizes, eg M2)	McMaster-Carr	5	various
Snap leads (0.5 m, 10x pack) [4]	OpenBCI (snap leads)	~ 600	13 packs

[1] Teensy 3.6 is now deprecated and common vendors (Digikey, Mouser, Adafruit, Sparkfun, PJRC) appear to be out of stock. If a Teensy 3.6 cannot be procured, one alternative is to use a Teensy 4.1 (blazing fast!). Note: T4.1 is not a drop-in replacement (not pin-for-pin compatible), therefore the pcb files must be updated accordingly!

[2] RN-42 Bluetooth silver mate module is now 'retired' by sparkfun. Suggested work-arounds: 1) Use the Intsy module in wired mode only. In this case, the Bluetooth module is not required and may be entirely left off the board. 2) the RN-42 bluetooth component is

still available from various vendors. Buy one of these, then download and fabricate one of sparkfun's original pcbs for the silver mate module.

[3] LiPo battery with 2500 mAh battery should be sufficient for running the Intsy module for approximately ~ 16 hr (= 2500 mAh/150 mA = 50/3 hr). WARNING: only a single power source may be safely applied to the Intsy module. The LiPo battery and USB cord should should NEVER be plugged in at the same time!

[4] Any snap leads will do. OpenBCI offers one relatively inexpensive option. However, in my hands, some of the clips are cheaply made and fail (probably 1 out of 20).