Off Board BOM

VB Dynamic DC Load

The enclosure:

TEKO AUS 33.5 Polystyrene 198x178x108mm

https://www.reichelt.com/nl/nl/shop/product/polystyreen_behuizing_198x178x108mm-21208#open-modal-image-big-slider

The AUS 33.5 is the bottom one from this stack.

The OLED display:

A Waveshare 128x128 1.5 inch color display

https://www.amazon.com/waveshare-1-5inch-RGB-OLED-Module/dp/B07DBXMFSN/ref=sr_1_1_sspa?crid=2ESRZ9ZDK8XZV&dib=eyJ2IjoiMSJ9.CtqPbCjEZfvSpF68GI5hxhvkFgvi3jkDHxRzV-lAeTspivc3Mrbp2BeEGA0WkSey2zo9wX_ZOaff0CMGs3kkS64Y8oqEOuZXVJG7g8Bur77PsTSCh5eiqmS2Q37uG6GpNTG_wYY2hr9IOwKtUmo6RDg4uA8AQUNjwUJmrzcuh_b7P5aJa3LjLMfqFRt83rnKhCz7OkmdnmznlEbGljUHda_SBS4mqvrzCqrMdqY6ZXs.kM4HffjJ4vmoj5brd0guuLJ9At0tBhnuYsMZO6Og1Ac&dib_tag=se&keywords=1.5inch+RGB+OLED+Display+Module+128x128+Pixels+color&qid=1712049477&sprefix=1.5inch+rgb+oled+display+module+128x128+pixels+color%2Caps%2C158&sr=8-1-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&psc=1

Two Fans:

The two fans are Noctua NF-A9x14 PWM.

https://www.amazon.com/Noctua-NF-A9x14-Premium-Quiet-92x14mm/dp/B009NQM7V2/ref=sr_1_1?crid=RIMLK7YHUYG&dib=eyJ2IjoiMSJ9.nyBCEPUapDaneASOxl51-GoFAI2gneNvo_L_7y7PvptNYUsWO8vls8muktP-fMtsixiYzGWWNjB_pfIOkhMrEkcbExYJ2GUsNunyWm2PBPcVopcJo9UYp2vv9I_WEgdxSwcWoaulTG52Eb787wj8LxpJL5M6SYRROFRAST1aSes111bdt36O9wIye3COD3cEAJairt7QAdKNhEV9U87LBZ1DnZs7Lem8byVV0Njec3s.fpH4J03QezsT5n-wXBJ0zsEq5JCF2PJ7nk5z6RBp2FA&dib_tag=se&keywords=noctua+nf-a9x14+pwm&qid=1726838223&sprefix=Noctua+NF-A9x14%2Caps%2C166&sr=8-1
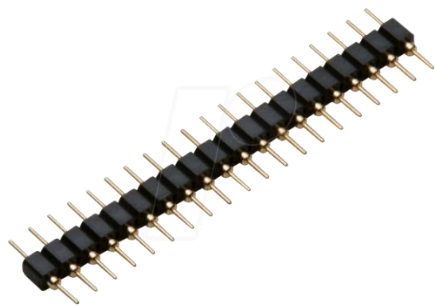
ESP32 WROOM 4Mb Devkit V1 Board

Make sure you get the unassembled version, without the connectors installed. The ones listed below are for a pack of three but seem to have the diode and the reboot capacitors installed. See the Blog for more details.

https://www.amazon.com/dp/B09QW6Y7KY/ref=sspa_dk_detail_6?pd_rd_i=B09QW6Y7KY&pd_rd_w=uks1g&content-id=amzn1.sym.386c274b-4bfe-4421-9052-a1a56db557ab&pf_rd_p=386c274b-4bfe-4421-9052-a1a56db557ab&pf_rd_r=2BP3YYWY5FBW5442JZAJ&pd_rd_wg=QCono&pd_rd_r=59a45996-bb27-4ab3-8a51-801088fcc171&s=pc&sp_csd=d2lkZ2V0TmFtZT1zcF9kZXRhaWxfdGhlbWF0aWM&th=1
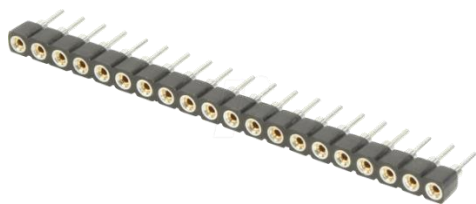
Male instrumentation header pins for the ESP32:

https://www.reichelt.com/nl/nl/shop/product/nauwkeurige_male_connector_20-polig_2_54_mm-235666?PROVID=2809&gad_source=1&gclid=Cj0KCQjwurS3BhCGARIsADdUH500XkxoHRjMcLN8ngMTOhFaHuKWn4UAld509o8MFIObZYtctC2s_MsaAoaTEALw_wcB

Female instrumentation header pins for the ESP32:

https://www.reichelt.com/nl/nl/shop/product/precisiecontactdoosstrook_2_54_mm_20-polig-119950#closemodal

DC Power Jack Panel Mount:

https://nl.aliexpress.com/item/32826020679.html?spm=a2g0o.detail.pcDetailTopMoreOtherSeller.8.13e20tXG0tXGm5&gps-id=pcDetailTopMoreOtherSeller&scm=1007.40000.327270.0&scm_id=1007.40000.327270.0&scm-url=1007.40000.327270.0&pvid=aba505bf-ca4f-4815-abe0-5ec3232bc843&_t=gps-id:pcDetailTopMoreOtherSeller,scm-url:1007.40000.327270.0,pvid:aba505bf-ca4f-4815-abe0-5ec3232bc843,tpp_buckets:668%232846%238111%231996&pdp_npi=4%40dis%21EUR%211.38%210.93%21%211.46%210.98%21%40211b60021716820786420 1249ee288%2164980637808%21rec%21NL%21%21AB&utparam-url=scene%3ApcDetailTopMoreOtherSeller%7Cquery_from%3A

For the SPST on/off power switch and the DPDT on-on switch for the sense input:

https://nl.aliexpress.com/item/1005004621032150.html?spm=a2g0o.productlist.main.11.13c72009I VmP3b&algo_pvid=09f8f184-53d4-42b0-a383-bd63d7fd38d2&algo_exp_id=09f8f184-53d4-42b0-a383-bd63d7fd38d2-5&pdp_npi=4%40dis%21EUR%213.14%210.93%21%21%213.33%210.99%21%40211b600417168206 024713778eddc9%211200002986073077%21sea%21NL%210%21AB&curPageLogUid=h3XMlsd0ge aE&utparam-url=scene%3Asearch%7Cquery_from%3A
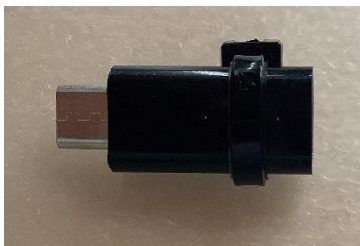
Two Double 4mm Binding posts (for the main and sense inputs):

https://nl.aliexpress.com/item/1005006993637978.html?src=google&src=google&albch=shopping& acnt=708-803-3821&slnk=&plac=&mtctp=&albbt=Google_7_shopping&gclsrc=aw.ds&albagn=888888&isSmbAutoC all=false&needSmbHouyi=false&src=google&albch=shopping&acnt=708-803-3821&slnk=&plac=&mtctp=&albbt=Google_7_shopping&gclsrc=aw.ds&albagn=888888&ds_e_adid= &ds_e_matchtype=&ds_e_device=c&ds_e_network=x&ds_e_product_group_id=&ds_e_product_id= nl1005006993637978&ds_e_product_merchant_id=107685434&ds_e_product_country=NL&ds_e_p roduct_language=nl&ds_e_product_channel=online&ds_e_product_store_id=&ds_url_v=2&albcp=1 9996252768&albag=&isSmbAutoCall=false&needSmbHouyi=false&gad_source=1&gclid=Cj0KCQjw3t CyBhDBARIsAEY0XNkM-C99DVmCVJD7q6hpzAQ7BVQk5Jpec9cncQ3TRbGqM05Pp4N1SW4aAtAMEALw_wcB&aff_fcid=49db0 50fc73e43d88329da19ac360644-1716820282761-08537-UneMJZVf&aff_fsk=UneMJZVf&aff_platform=aaf&sk=UneMJZVf&aff_trace_key=49db050fc73e43d88 329da19ac360644-1716820282761-08537-UneMJZVf&terminal_id=37b0b5df1e714a659472cd0fb08fa9b5&afSmartRedirect=y

Four Rubber feet for the enclosure:

https://nl.aliexpress.com/item/1005006140637202.html?spm=a2g0o.productlist.main.11.5f006777 weRaLJ&algo_pvid=b57c2085-1b92-44cf-9603-8b2d2531de0d&algo_exp_id=b57c2085-1b92-44cf-9603-8b2d2531de0d-5&pdp_npi=4%40dis%21EUR%215.76%210.93%21%21%2144.24%217.14%21%40211b60041716820 9006953353eddc9%211200003594153008%21sea%21NL%210%21AB&curPageLogUid=qmO3vVLQ ShF4&utparam-url=scene%3Asearch%7Cquery_from%3A

USB-micro to USB-C adapter

To bring the ESP32 micro-USB connector to the front panel. Shown here with a tie-wrap installed.

TO-220 isolators for the LM45 and the L-shape rails for the heatsink/fan mount and silicon pads for the LM35

https://nl.aliexpress.com/item/1005003600636535.html?spm=a2g0o.productlist.main.5.2d6f745bfB
K0XB&algo_pvid=e590fb4f-7700-4df9-9a37-41cd1e558271&algo_exp_id=e590fb4f-7700-4df9-9a37-
41cd1e558271-
2&pdp_npi=4%40dis%21EUR%211.76%210.93%21%21%211.86%210.98%21%40211b600417168210
999308410eddc9%211200026448146183%21sea%21NL%210%21AB&curPageLogUid=SUDuTFwmZ
YuM&utparam-url=scene%3Asearch%7Cquery_from%3A

Bottom fan mount:

M3x30mm Screws, rings, self-locking nuts, nylon rings.

OLED display mount:

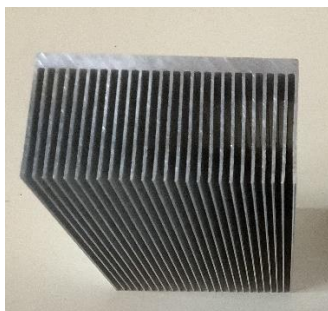8xM2 nuts, 4xM2 flat washers

Heatsink mount:

Aluminium L-strip 15x15x1mm 2x 90mm long

Your local DIY store.

Main Heatsink:

100x60x36mm

https://nl.aliexpress.com/item/1005005795216874.html?spm=a2g0o.detail.pcDetailTopMoreOtherS
eller.7.2c04stAXstAXYL&gps-
id=pcDetailTopMoreOtherSeller&scm=1007.40000.327270.0&scm_id=1007.40000.327270.0&scm-
url=1007.40000.327270.0&pvid=e745e66a-a627-4546-9679-3ce570f7cdcc&_t=gps-
id:pcDetailTopMoreOtherSeller,scm-url:1007.40000.327270.0,pvid:e745e66a-a627-4546-9679-
3ce570f7cdcc,tpp_buckets:668%232846%238110%231995&pdp_npi=4%40dis%21EUR%2115.30%21
0.91%21%21%21117.68%216.96%21%402103872a17268410663474898ef22d%21120000344135928
77%21rec%21NL%21%21ABX&utparam-
url=scene%3ApcDetailTopMoreOtherSeller%7Cquery_from%3A

Two Standoffs for the PCB:

Four 30mm M3 standoffs, screwed together to get the 60 mm height. I'm using M3 screws, rings and nuts to fasten them, and also adjust the height.

https://nl.aliexpress.com/item/1005006201670859.html?spm=a2g0o.productlist.main.43.4ca97687e aHHDP&algo_pvid=c1665eca-7a20-451e-94b5-16e1ba2e0f6b&algo_exp_id=c1665eca-7a20-451e-94b5-16e1ba2e0f6b-21&pdp_npi=4%40dis%21EUR%213.10%213.10%21%21%213.29%213.29%21%40211b801b17168213 3555486244e0284%2112000036249519037%21sea%21NL%210%21AB&curPageLogUid=8EM8qmvjz LlG&utparam-url=scene%3Asearch%7Cquery_from%3A

Wire crimp connectors for the heavy duty wires for the main input (10A minimum!)

https://nl.aliexpress.com/item/1005005738838654.html?spm=a2g0o.productlist.main.1.490c7e76U kgn7C&algo_pvid=8adb5801-7605-48ce-b92f-a7cbc3ca99d5&algo_exp_id=8adb5801-7605-48ce-b92f-a7cbc3ca99d5-0&pdp_npi=4%40dis%21EUR%2123.73%210.93%21%21%21182.38%217.14%21%40211b619a17168 216939968441e1157%2112000034168670880%21sea%21NL%210%21AB&curPageLogUid=QiBeLupl CDFR&utparam-url=scene%3Asearch%7Cquery_from%3A

An example for the rotary encoder knob: (eat your hart out...)

https://www.aliexpress.com/item/1005006832967267.html?spm=a2g0o.productlist.main.35.7b7d1b 1cOOB9Nk&algo_pvid=71978a98-8bff-4885-89eb-4c9ded82aa0f&algo_exp_id=71978a98-8bff-4885-89eb-4c9ded82aa0f-17&pdp_npi=4%40dis%21EUR%211.62%211.62%21%21%211.72%211.72%21%40211b61531716822 1322161616e35bc%2112000038448283145%21sea%21NL%210%21AB&curPageLogUid=jStiSbQpth MK&utparam-url=scene%3Asearch%7Cquery_from%3A

Solder lugs:

For 4mm binding posts

Two TO-220 Heatsinks for the NFET's

V5630-T from Assmann WSW Components, Digikey partnumber AE10898-ND

Two BNC connectors

Adam Tech Digikey p/n 2057-RF1-106-D-00-50-HDW-ND