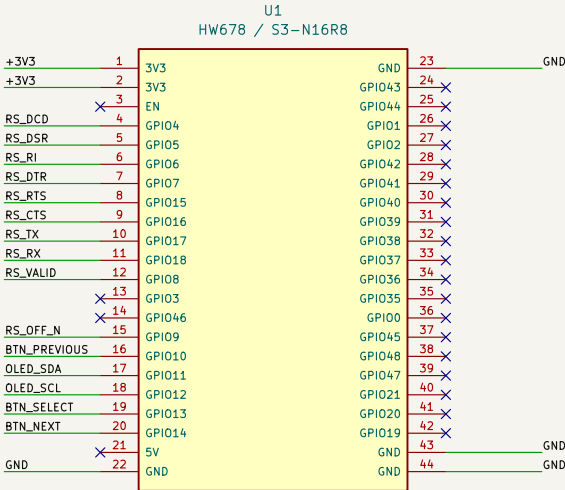


MODULE CARRIER – INITIAL SCHEMATIC

Native KiCad 10 schematic. Named wire labels join matching nets on this sheet.
Read hardware/PCB/README.md before layout or fabrication.

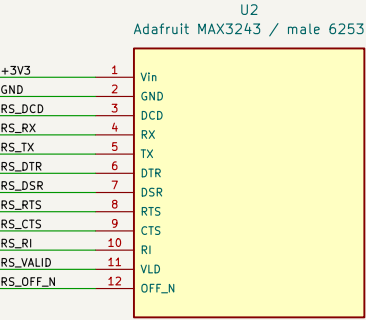
U1: complete development board

Antenna up / USB down; left row 1–22, right row 23–44.
NC marks mean unused on carrier, not unused inside module.

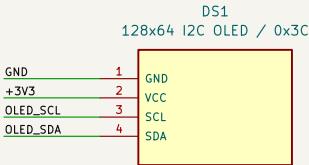


U2: complete RS–232 breakout

Male 6253 selected. Numbers from published 5988 female CAD.
Male mapping user-reviewed; reference footprint assigned.
DE–9 and charge pump are already on the module.



DS1: front view GND / VCC / SCL / SDA

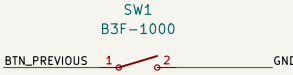
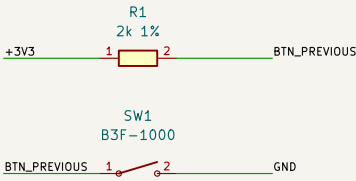


Power at 3.3 V only. Onboard I2C pull–ups user–confirmed;
resistance and rail unmeasured; no external pull–ups.

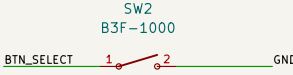
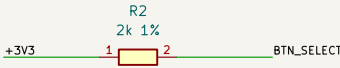
RS–232 / ELECTRICAL LIMITS
TX/RX and modem labels are at the ESP32 logic side.
OFF_N is active low; GPI09 must remain open–drain.
Breakout provides its OFF pull–up. No galvanic isolation.
No carrier connection to raw RS–232 voltages.
Carrier GND, USB GND and RS–232 signal ground are common.
Never power OLED or MAX3243 logic from 5 V.

Controls: active–low, firmware–debounced

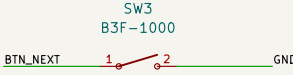
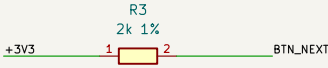
External 2k 1% pull–ups: ~1.65 mA at 3.3 V.
Chosen for B3F–1000 rated contact load; internal
pull–ups may remain enabled. Exact resistor MPN pending.



Previous / back



Select / confirm



Next

USER ACCEPTANCE / EVIDENCE LIMITS
Module mapping and visual fit accepted by user.
B3F–1000 and 2k 1% metal–film resistors purchased.
M3 carrier/module hardware; M2 display hardware.
RF/power routing accepted, not qualified.
Regulator margin and USB backfeed safety unverified.
ERC is not hardware or fabrication approval.

Not fabrication–ready: provisional module footprints and male RS–232 mapping

Sheet: /
File: serial–carrier.kicad_sch

Title: ESP32 Serial Swiss Army Knife – Module Carrier

Size: A3 Date: 2026–09–20

Rev: A0 DRAFT

KiCad E.D.A. 10.0.6

Id: 1/1