SMART FARMING GREENHOUSE v0.1 (CONTOH rancang.in)

ESP32-C3-MINI-1 · 2 probe tanah · port I2C · relay pompa · 12 V -> 5 V -> 3,3 V · 2 lapis

Contoh desain, belum diproduksi, belum diuji di perangkat keras.

Daya

Masukan 12 V, PTC, TVS, Schottky

Buck LMR33630 5 V, LDO AP2112K 3,3 V

File: daya.kicad_sch

Papan

ESP32-C3-MINI-1-N4, EN/BOOT, UART

2 probe tanah (RC + ESD), port I2C

File: papan.kicad_sch

Relay

Relay SRD-05VDC + S8050

terminal kontak kering

File: relay.kicad_sch

rancang.in contoh: ESP32-C3, 2 probe tanah, I2C, relay pompa, 12 V

rancang.in

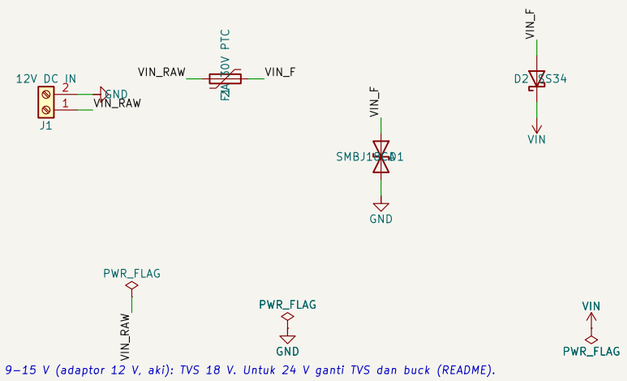
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File: smart-farming-greenhouse.kicad_sch

Title: Smart farming greenhouse v0.1

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MASUKAN 12 V

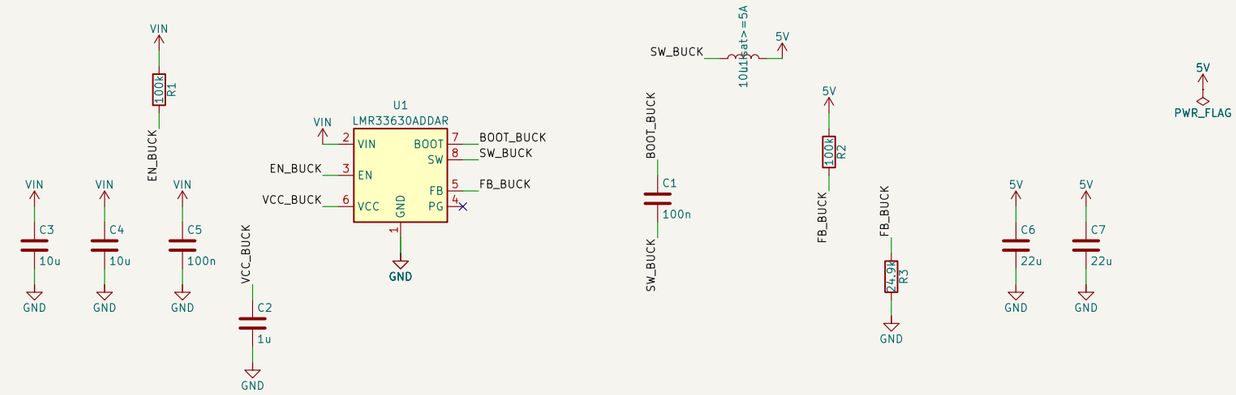
Terminal 5,08 mm · PTC 2 A · TVS SMBJ18CA (jepit < 38 V buck) · Schottky seri



Rentang 9–15 V (adaptor 12 V, aki): TVS 18 V. Untuk 24 V ganti TVS dan buck (README).

5 V — LMR33630ADDA

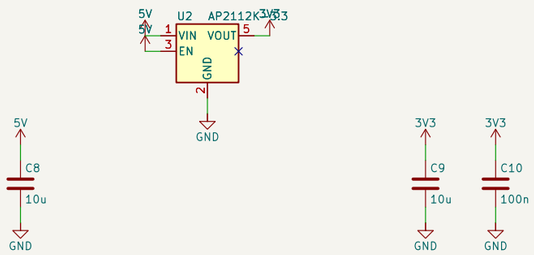
400 kHz · 3 A · Vout = 1,0 V x (1 + 100k / 24,9k) = 5,02 V · EN ke VIN lewat 100k



Cin 2 x 10 uF/35 V + 100 nF; Cout 2 x 22 uF (datasheet: 4 x 22 uF untuk 3 A; beban 1 A, UNVERIFIED riak).

3,3 V — AP2112K-3.3

LDO 600 mA dari 5 V



rancang.in contoh: ESP32-C3, 2 probe tanah, I2C, relay pompa, 12 V

rancang.in

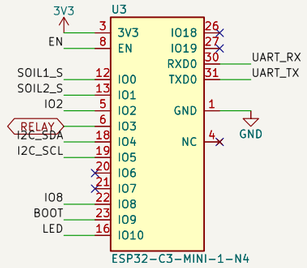
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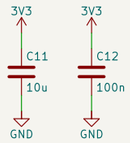
Title: Catu: 12 V -> 5 V (LMR33630) -> 3,3 V (AP2112K)

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ESP32-C3-MINI-1-N4

IO0/IO1 = probe tanah (ADC1) · IO4/IO5 = I2C · IO3 = relay · IO10 = LED

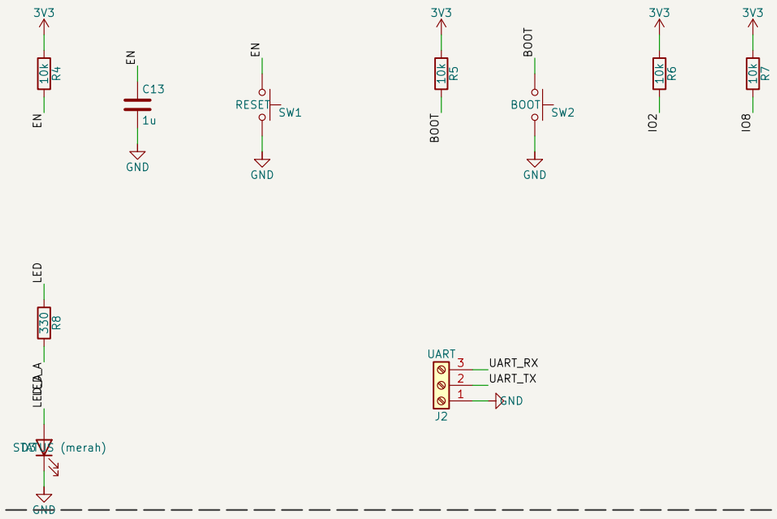




IO6, IO7, IO18, IO19 tidak dipakai (flag NC). IO2, IO8, IO9 = strapping (README).

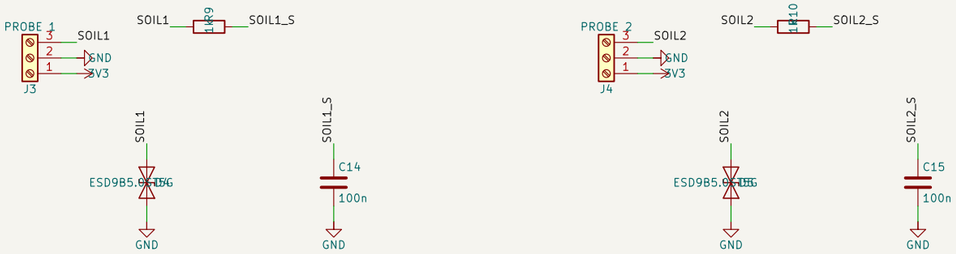
RESET, BOOT, STRAPPING, LED, UART

EN: RC 10k + 1 uF · BOOT = IO9



PROBE KELEMBAPAN TANAH ×2 (analog 0–3,3 V)

Terminal 2,54 mm: 3V3, GND, AOUT · RC 1k + 100 nF · ESD



Probe kapasitif 3,3 V (keluaran 0–3 V): ADC1 IO0/IO1. Probe 5 V tidak didukung (README).

PORT I2C (MODUL SENSOR UDARA)

XH 4 pin: GND, 3V3, SDA, SCL · pull-up 4,7k · SHT31/SHT40 modul



Modul SHT31/SHT40 dibeli terpisah (alamat 0x44).

rancang.in contoh: ESP32-C3, 2 probe tanah, I2C, relay pompa, 12 V

rancang.in

Sheet: /Papan/

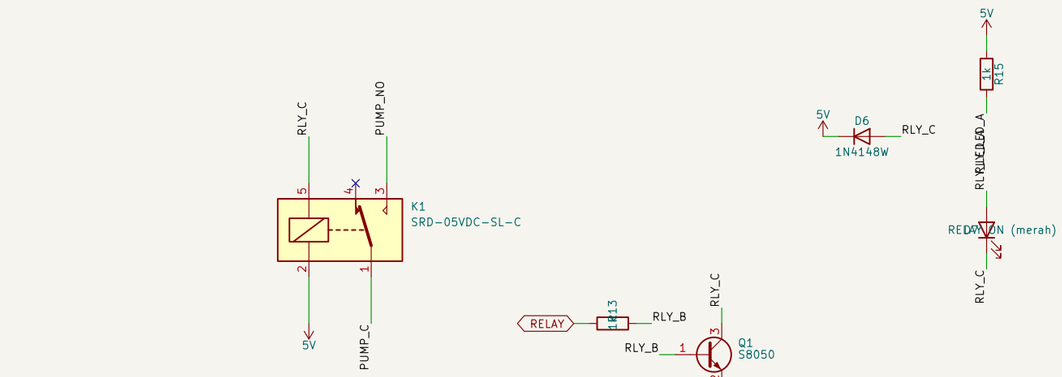
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Title: ESP32-C3-MINI-1, probe tanah, port I2C, relay pompa

Size: A3	Date: 2026-10-28	**Rev: 0.1**
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RELAY POMPA — SRD-05VDC-SL-C

Koil 5 V 71,4 mA · S8050 dari IO3 · kontak COM + NO ke terminal (beban DC 12 V, <= 5 A)



POMPA
2 PUMP_NO
1 PUMP_C
J6

PWR_FLAG PWR_FLAG

Kontak kering: sambungkan adaptor 12 V ke COM pompa ke NO (arus <= 5 A, UNVERIFIED lebar jalur).

PUMP_C PUMP_NO

rancang.in contoh: ESP32-C3, 2 probe tanah, I2C, relay pompa, 12 V

rancang.in

Sheet: /Relay/
File: relay.kicad_sch

Title: Relay pompa: SRD-05VDC + S8050, terminal kontak kering

Size: A3	Date: 2026-10-28	**Rev: 0.1**
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