Schematic diagram: ControllerDish.full — Placa base, esquema v5.sch

TSR1-2450
- VCC → 1 VIN | +VO 3 → 5V
- GND 2 → GND
- 5V

TSR1-24120
- VCC → 1 VIN | +VO 3 → 12V
- GND 2 → GND
- 12V

X1-1 / X1-2 (MKDS1/2-3,81)
- 5V → 1 X1-1
- GND → 2 X1-2

ESP32 (ESP32-DEVKITC-32D)

Pin	Left		Right	Pin
1	3V3		GND3	20 → GND
2	EN		IO23	21
3	SENSOR_VP		IO22	22 → M2PWM
4	SENSOR_VN		TXD0	23
5	IO34 ← M2CUR		RXD0	24 → M2EN
6	IO35 ← M1CUR		IO21	25
7	IO32 ← M1DIR_LPWM		GND2	26 → GND
8	IO33 ← M2DIR_LPWM		IO19	27
9	IO25		IO18	28 → M1EN
10	IO26		IO5	29
11	IO27 ← M1PWM		IO17	30
12	IO14		IO16	31
13	IO12		IO4	32
14	GND1 ← GND		IO0	33
15	IO13		IO2	34
16	SD2		IO15	35
17	SD3		SD1	36
18	CMD		SD0	37
19	EXT_5V ← 5V		CLK	38

RS-485 module (X3)
- GND → ISO_GND | GND → GND
- X3-1 1 → B- | RX
- X3-2 2 → A+ | TX
- VCC → 3V3

RS-485 module (X2)
- 3V3 → VCC | A+ → 4 X2-4
- TX | B- → 3 X2-3
- RX
- GND → GND | ISO_GND → 2 X2-2
- 12V → 1 X2-1

RS-485 module (AUX-485)
- 3V3 → VCC | A+ → 4 AUX-485-4
- TX | B- → 3 AUX-485-3
- RX
- GND → GND | ISO_GND → 2 AUX-485-2
- 5V → 1 AUX-485-1

VCC-1 — 1 → VCC
VCC-2 (MSTBA2) — 2 → GND

VCC1 → VCC
VCC2 → VCC
GND2 / GND1 → GND, GND

EL-1 / EL-2
- EL-1 1 → M1-
- EL-2 2 → M1+

AZ-1 / AZ-2
- AZ-1 1 → M2-
- AZ-2 2 → M2+

IBT_2_1
Pin		Pin	
8	GND	7	3V3
6		5	M1CUR
4		3	M1EN
2	M1DIR_LPWM	1	M1PWM

IBT_2_2
Pin		Pin	
8	GND	7	3V3
6		5	M2CUR
4		3	M2EN
2	M2DIR_LPWM	1	M2PWM

open hardware