BLOCK T — VEHICLE POWER INPUT 9–36V -> 5V/3A (replaces Mean Well SD-15B-5). F2+Q10 rev-pol+SMCJ33A -> TPS54360B 600kHz -> VEH5V. J5 = bench backup, one source at a time.

BLOCK U — VIBRATION (T11): U26 SC7A20 3-axis accel, I2C addr 0x18 (CS=3V3, SA0=GND), INT1 -> PB9. LAYOUT: place near a mounting hole for rigid chassis coupling; not on the key board edge.

BLOCK O — I/O expander: gauge + RGB status (E-1.1). PCF8574 SINKS: LEDs common-anode 3V3.

BLOCK M — customer serial: SC16IS752 @0x4D (A1=A0=GND; 0x48 would collide with TMP102). ChA=RS-485 (U12 THVD1410), ChB=RS-232 (U16 TRS3232E). RS485 = U11 SN74LVC1G04DBVR: receive at reset; EPCR=0x10 (RTSCON=1, RTSINVER=0), ChB=RS-232 (U16 TRS3232E).

BLOCK N — Ethernet W5500 on SPI2 (PB13/14/15 + CS PB12, RST PA15, INT PC0 (3.0: PB2 = BOOT1 strap — never repurpose PB2. Bench flash: USB powers 3V3 domain only via D16 (SYS5V dark: K1 is DNP on v6, PC6 -> R8 -> DIN_4G).

BLOCK P — ON-BOARD MCU (EinarBoard 3.0). STM32F411RET6 LQFP64 (replaces WeAct BlackPill). HSE = 25MHz crystal (required for USB; tap NRST -> USB. HSE 25MHz REQUIRED for ROM-bootloader USB clock (AN2606). PB2=BOOT1 strapped LOW via R24 — NEVER repurpose PB2. Bench flash: USB powers 3V3 domain only via D16 (SYS5V dark: K1 is DNP on v6, PC6 -> R8 -> DIN_4G).
PC6/PC7 reserved: USART6 (RS-485 ChA, future). Free: PA7, PB9, PB10, PC1–PC5, PC8–PC12, PD2, LED_C13 active-LOW (Blackpill parity). SWD: TP4/TP8/TP7/TP2/TP1 (SWDIO/SWCLK/NRST/GND/3V3).

2ND EXTERNAL NTC PROBE (T10): same circuit as the first probe J2/R14/C9 (/NTC_TEMP -> PB1). This one -> PC4 (ADC12_IN14). The old TMP102 and the SHT40 probe jack were deleted; on-board U8 SHT40 = tair+humidity.

T43 (22-oct-2026): designadores en orden, sin huecos: tabla viejo→nuevo en drogheda.helgen.online
Last Review: Dr. Leopoldo Rodriguez Salazar
Helgen Servicios Especializados
Sheet: /
File: hbox-watchdog-v6.kicad_sch

Title: EINARBoard HBOX v6

Size: A1	Date: 2026-10-22	Rev: 6.0
KiCad E.D.A. 10.0.4		Id: 1/1