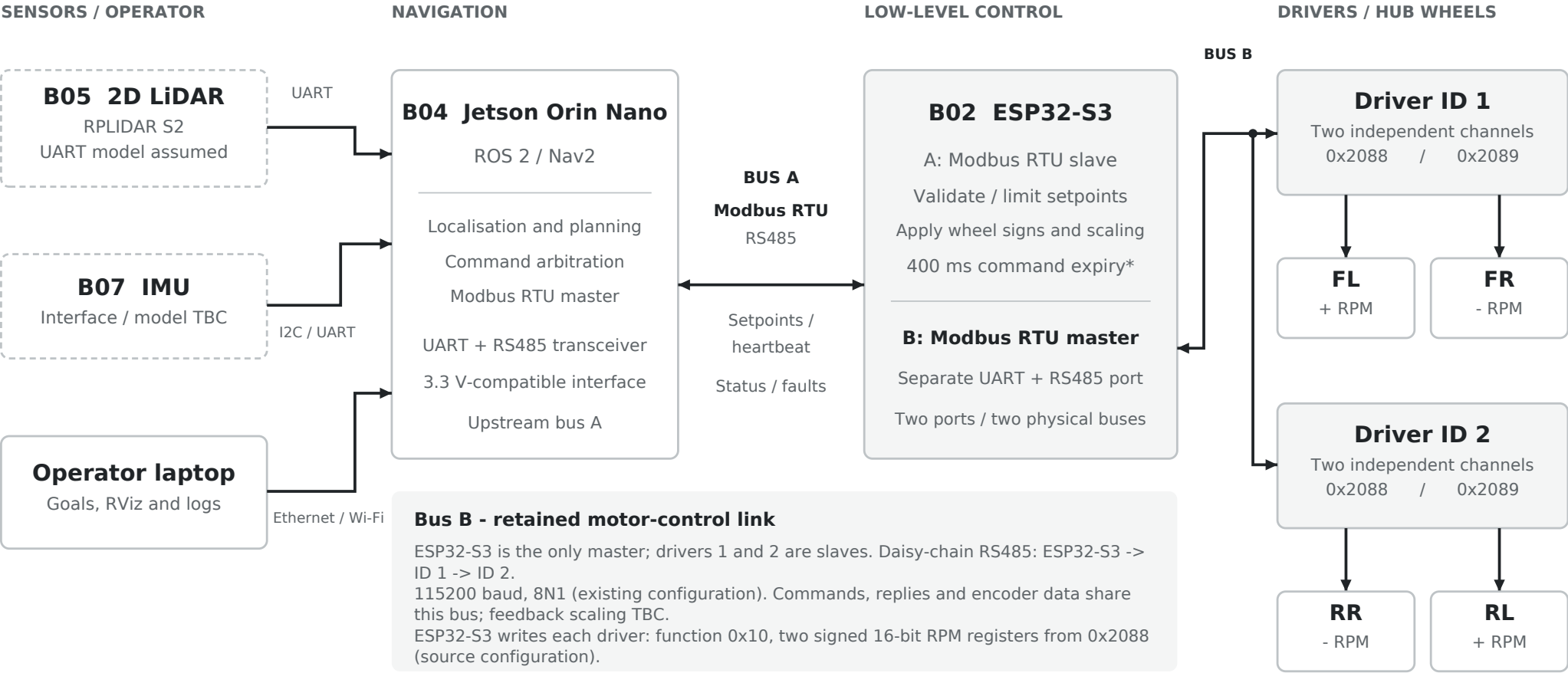


Signal path

Modbus RTU between Jetson and ESP32-S3; two independent motor channels on each driver.



Upstream Modbus implementation required

Use Jetson UART with an RS485 transceiver and a separate ESP32-S3 UART/RS485 port. Add the second port if absent; do not join buses A and B. Define four wheel setpoint registers, heartbeat, status and faults. Register map / firmware TBC; the old CMD text frame is removed.

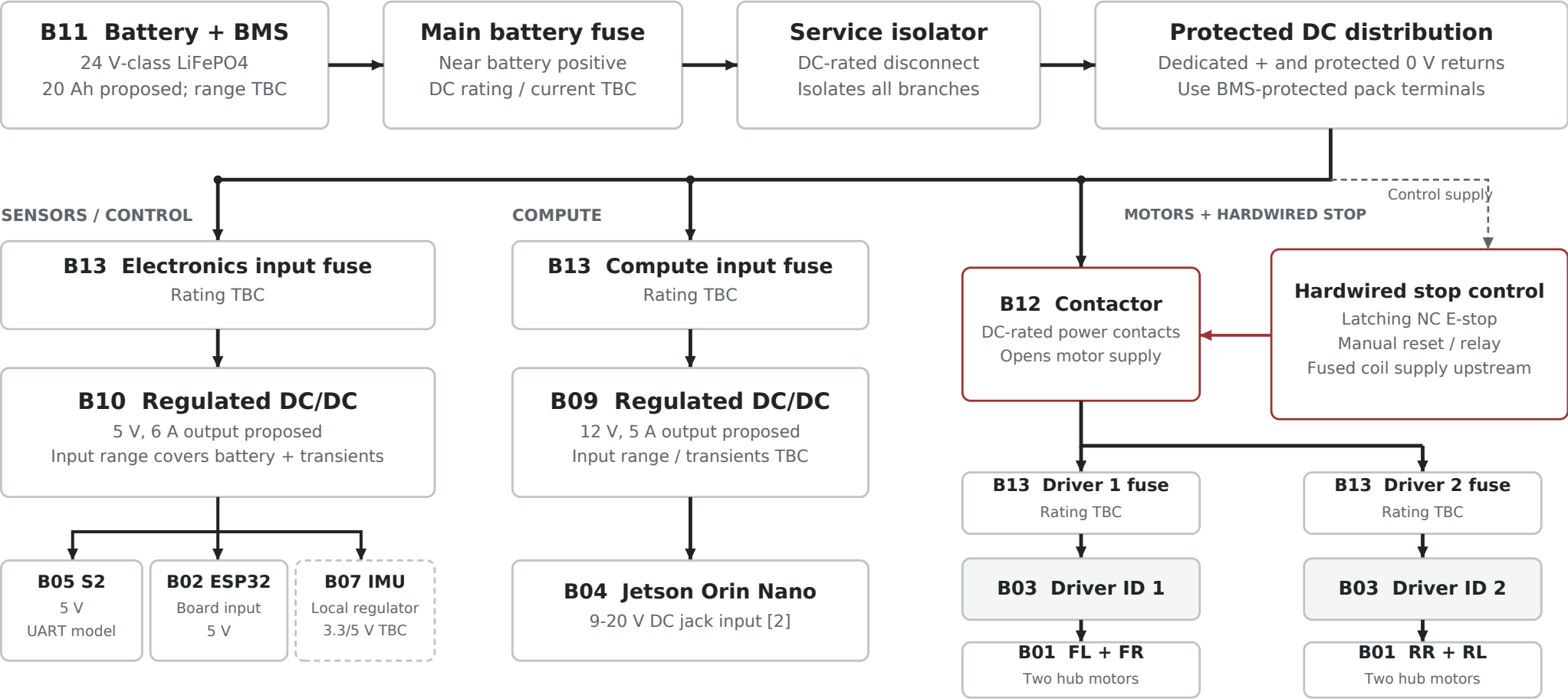
Wiring and commissioning

Terminate each RS485 bus at its two physical ends; use a twisted pair and signal reference. Confirm biasing and matching serial settings [1]. Wheel mapping is from the source PDF; signs indicate forward travel. Verify on stands. *400 ms is a target; verify driver timeout and stop response.

[1] Modbus serial-line guide V1.02

Power path

Separate regulated electronics supplies and a hardwired motor-energy disconnect; ratings marked TBC need selection.



Power selection

Motor ratings retained: 4 x 24 V, 100 W. Select battery, BMS, cables, fuses and converters for actual peak current, inrush and full-charge voltage. Legacy Jetson Nano needs 5 V, not 12 V. S2E LiDAR needs 12 V [3]. Verify installed models; the drawing assumes Orin Nano + UART S2.

Stop and return paths

E-stop leaves electronics powered; reset must not restart motion. Validate stopping distance and driver-side regenerative energy protection. Power lines represent supply + dedicated return. Do not use chassis as return or bypass the BMS. BMS status/thermal interface to ESP32-S3 TBC.