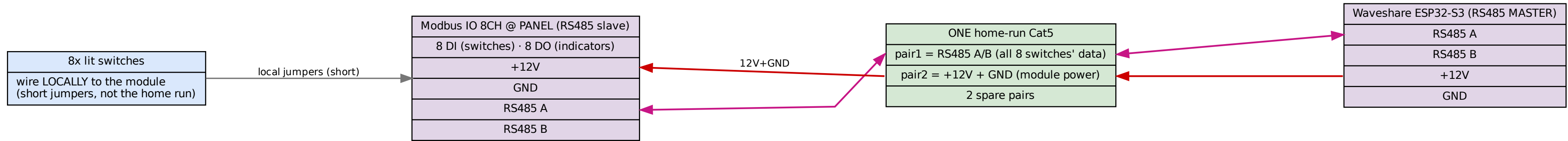


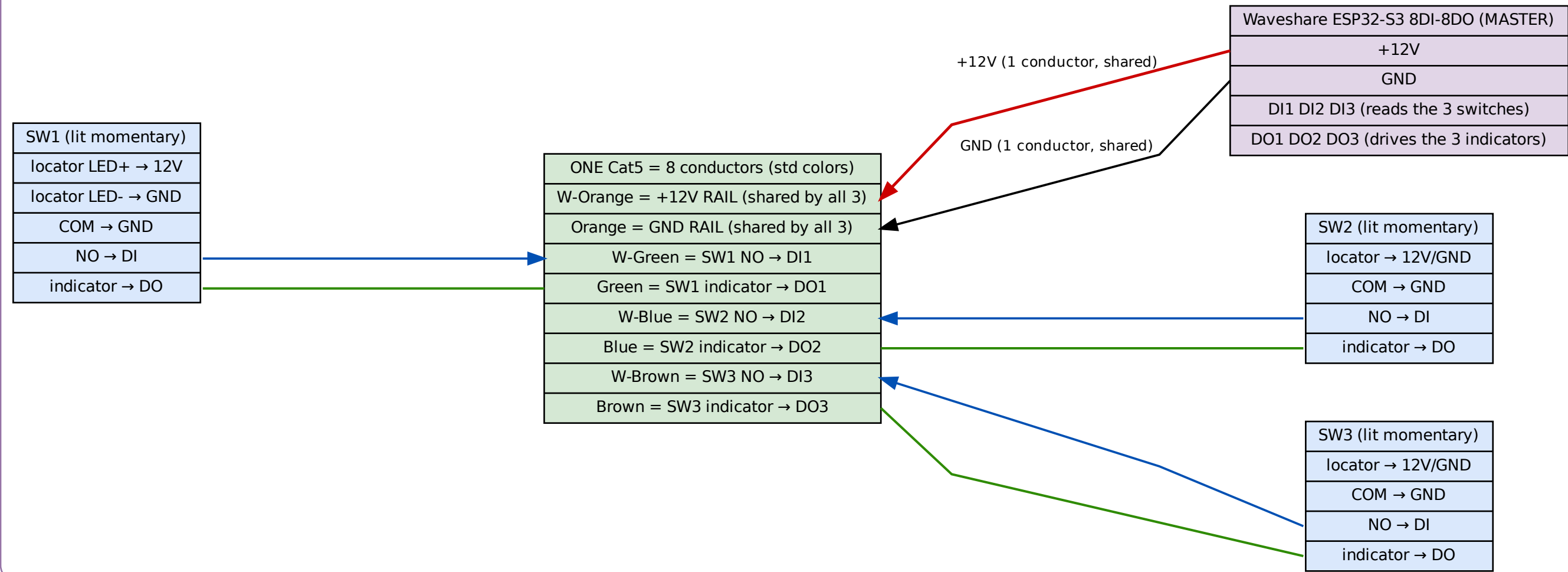
2014 RAM 1500 Carputer — HOW MANY LIT SWITCHES PER Cat5 (and how to scale)  
 Each lit switch needs only 2 of its OWN conductors: contact → a DI, indicator LED → a DO. All switches SHARE one +12V + one GND conductor.  
 BUDGET (direct): 8 conductors – 2 shared rails = 6 left ÷ 2 per switch = 3 LIT SWITCHES PER Cat5.  
 SCALE: add a Cat5 per +3 switches —OR— put a Modbus IO 8CH at the panel: switches wire LOCALLY, ONE Cat5 home-runs the BUS → 8 switches per Cat5 (add modules to grow).  
 LEGEND: red = +12V · black = GND · blue = contact→DI · green = indicator→DO · magenta = RS485

APPROACH B — MODULE AT PANEL: 8 switches per ONE home-run Cat5 (the scalable way)



SCALE BEYOND 8:  
 add another Modbus IO 8CH (different RS485 address) on the SAME bus -> +8 switches.  
 daisy-chain RS485 down the line; up to ~32 devices share the two A/B wires.  
 -> 16, 24, 32... switches still on basically ONE thin Cat5 bus.

APPROACH A — DIRECT WIRING: 3 lit switches per Cat5



RULE OF THUMB  
 DIRECT: 3 lit switches per Cat5 (2 conductors each + shared 12V + shared GND)  
 MODULE: 8 lit switches per home-run Cat5 (Cat5 carries the RS485 bus, not each switch)  
 Every conductor here is mA-level signal/LED -> 24 AWG Cat5 is plenty.  
 The only thick wire is the LOAD each switch turns on (relay -> light), nowhere near the Cat5.  
 Stranded Cat5e + ferrules into the screw terminals.