Fiat micro-vett
BMS

Connections and how (i think!) it works in general

Updated 23. July 2017

Bms nodes

The BMS CAN bus runs at 125 kbps

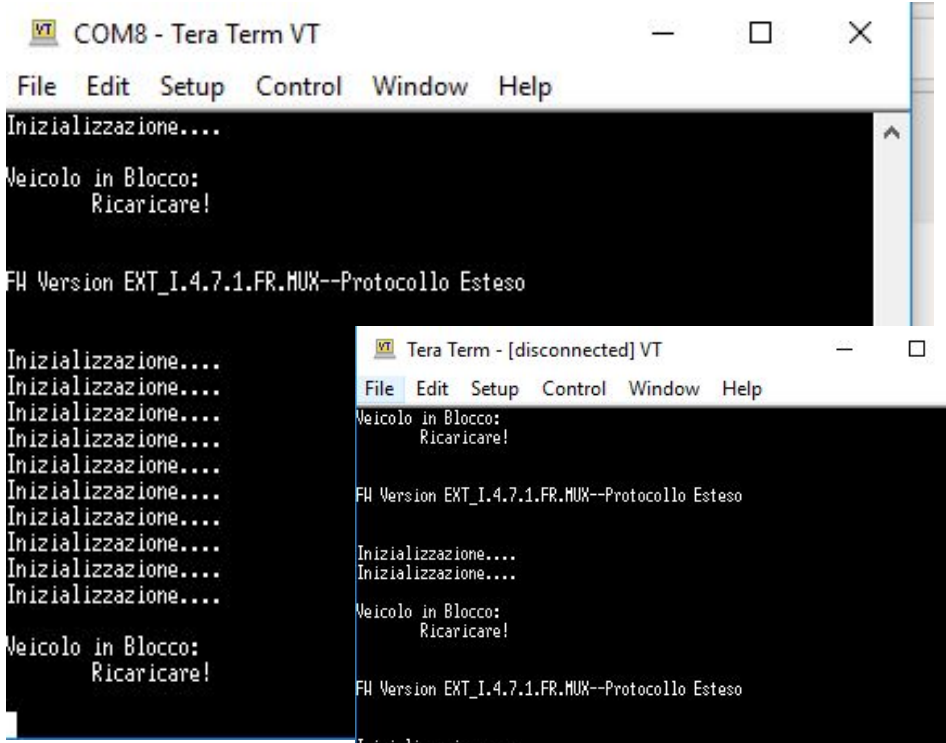
There are 10 nodes on it:

9 x battery packs

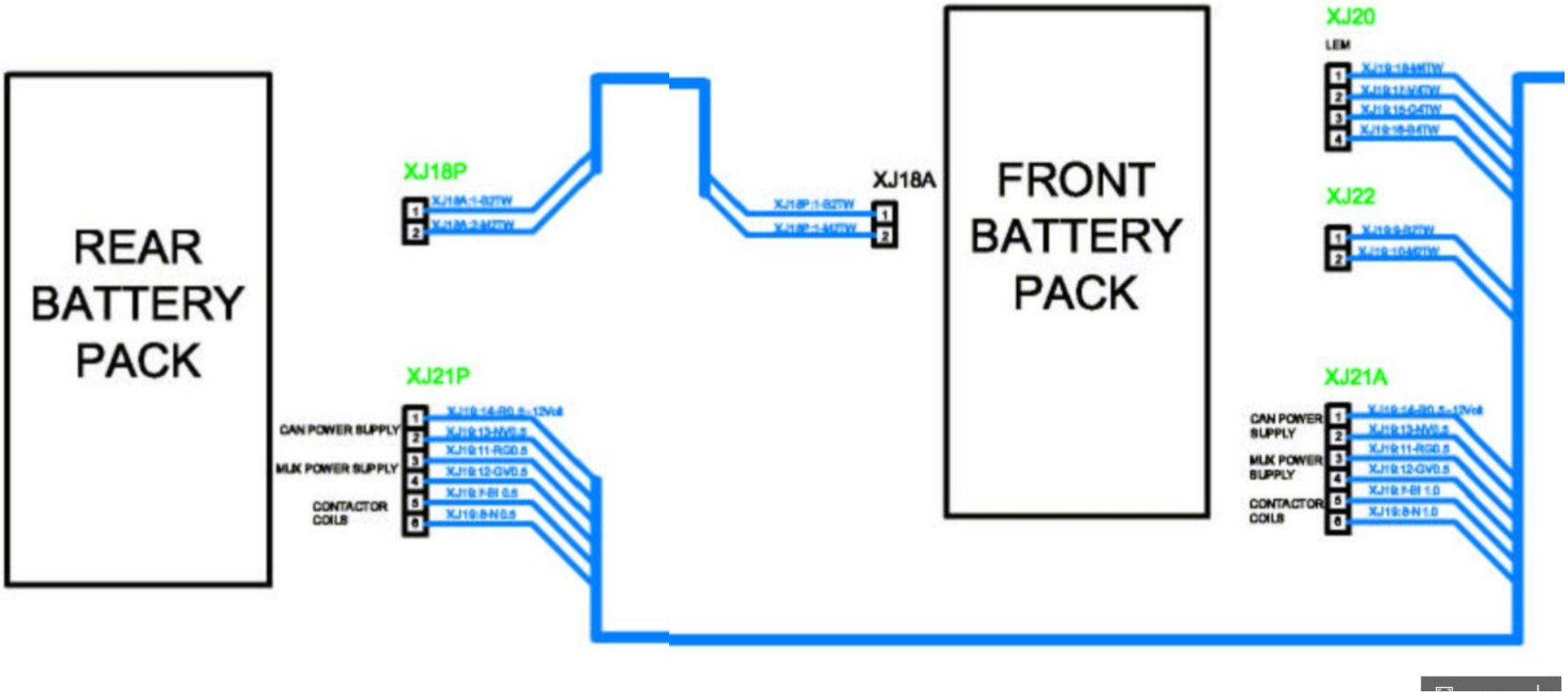
1 x ansaldo inverter

1 x ??

Not sure if this is the CAN nodes, or 10 separate units on the MUX bus ?

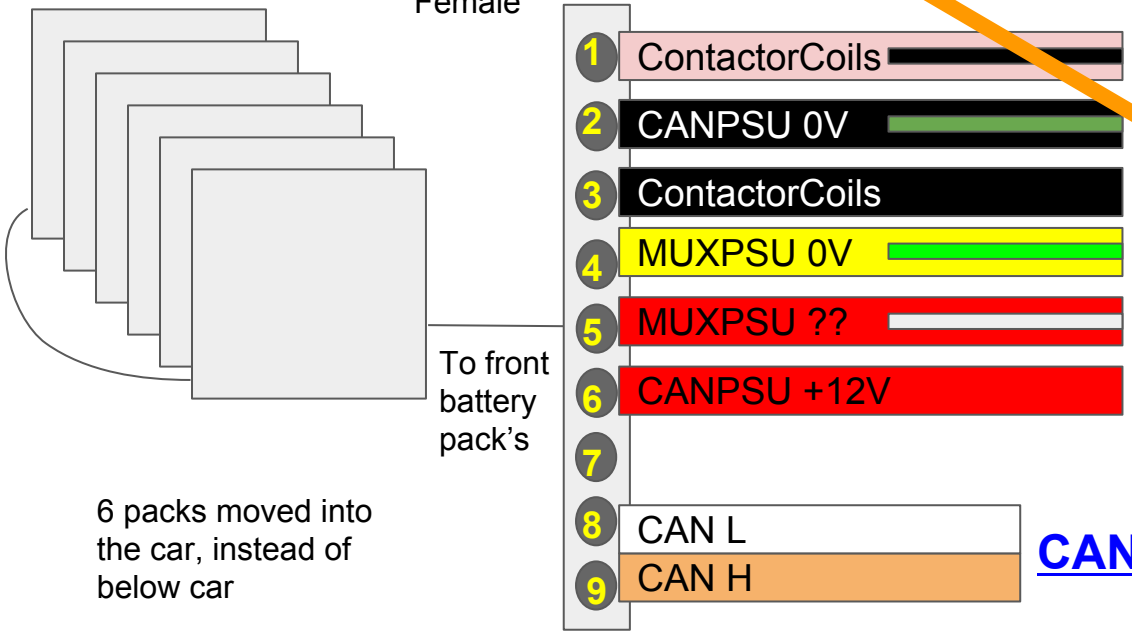


After repairing connections between battery packs rear, only two lines ‘inizializzazione. Why do the two last nodes refuse init ?


REAR BATTERY PACK
XJ18P
XJ18A
FRONT BATTERY PACK
XJ20
LEM
XJ22
XJ21P
CAN POWER SUPPLY
MUX POWER SUPPLY
CONTACTOR COILS
XJ21A
CAN POWER SUPPLY
MUX POWER SUPPLY
CONTACTOR COILS

Rear battery pack

HACK:
Original defect connectors replaced with 9 pin sub-D Female



To front battery pack's

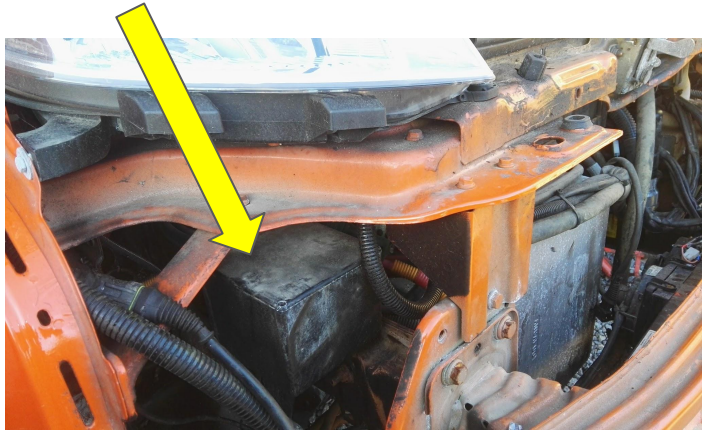
6 packs moved into the car, instead of below car

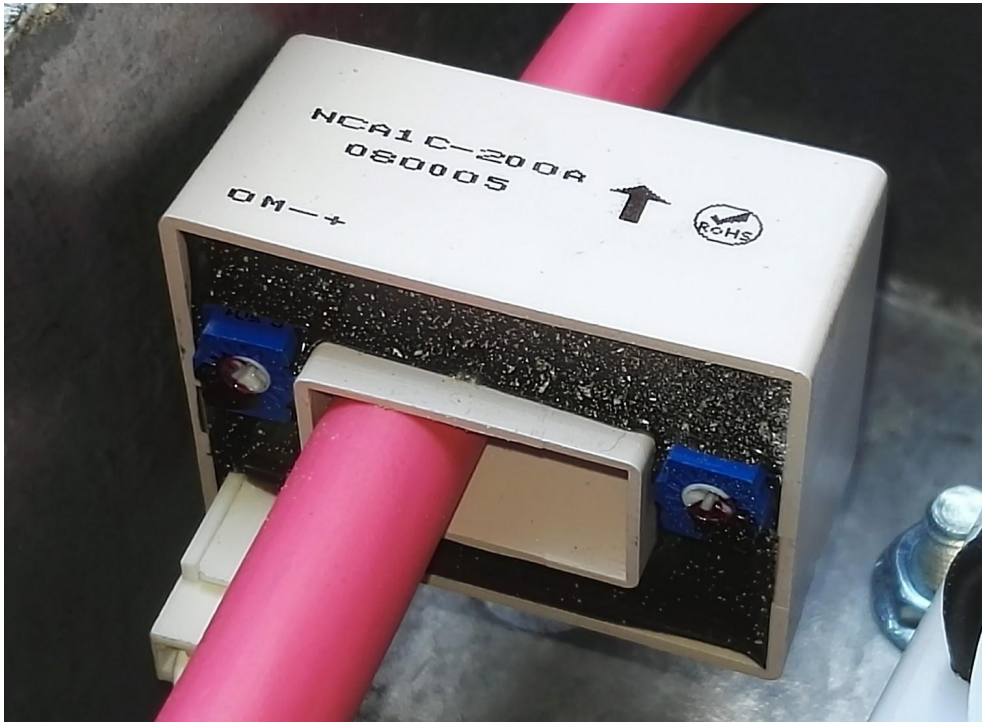
CAN speed_ 125 Kbps

LEM 200 Amp current transformer

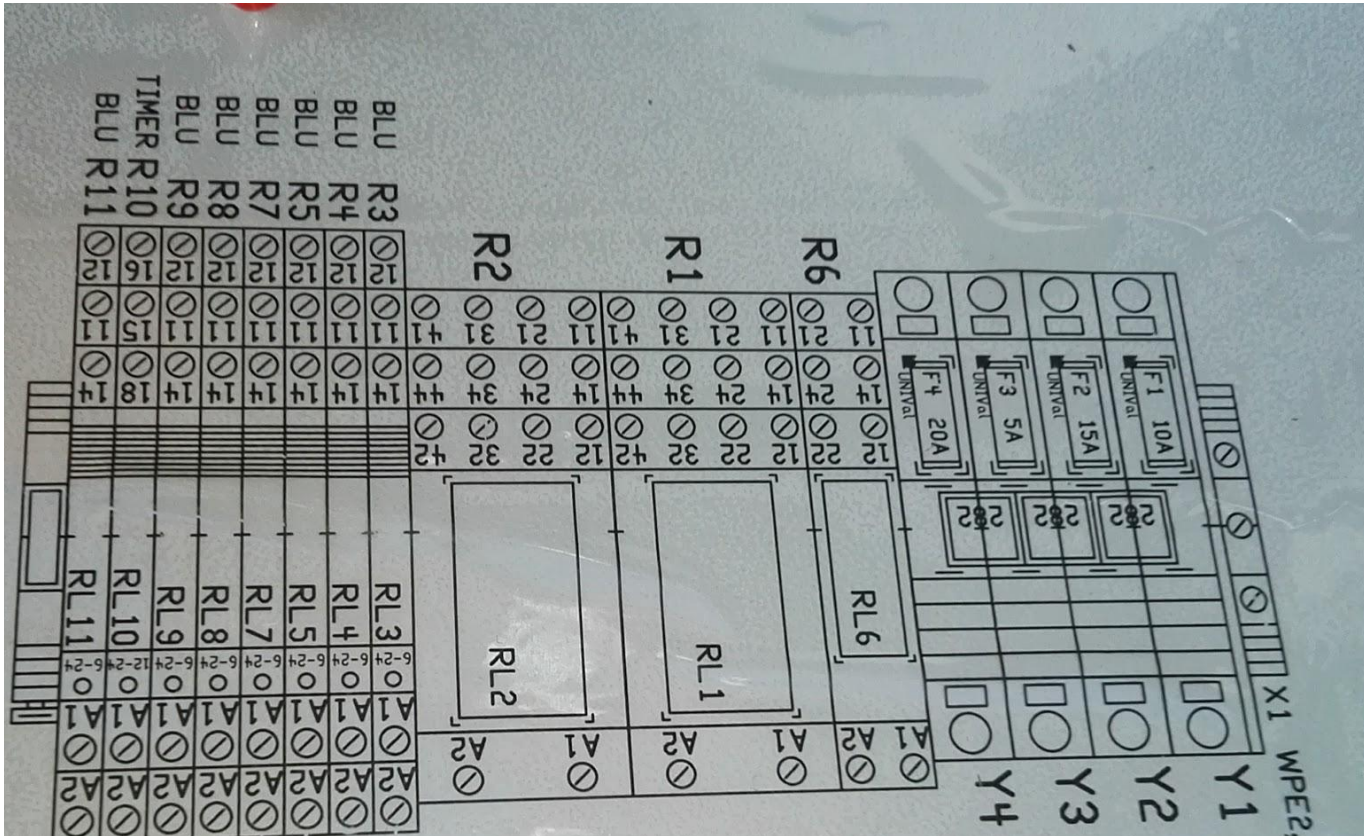
LEM current sensor Supply voltage (+/-5%) is +/-15V for NCA1C-200A.
Voltage low is 14,25V for LEM sensor

Placed below right front light, and connected

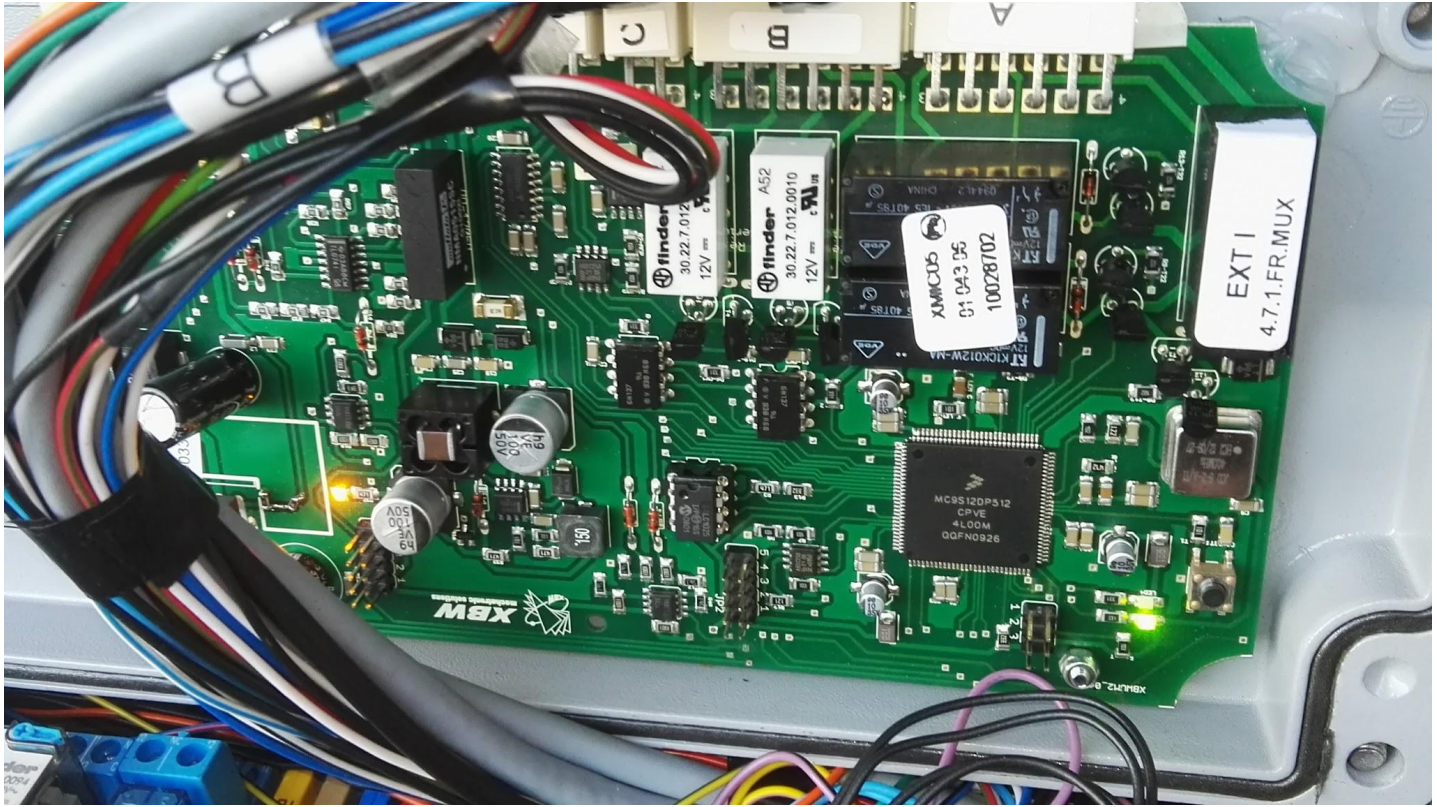




Relay’s and fuses in the box in front above battery pack

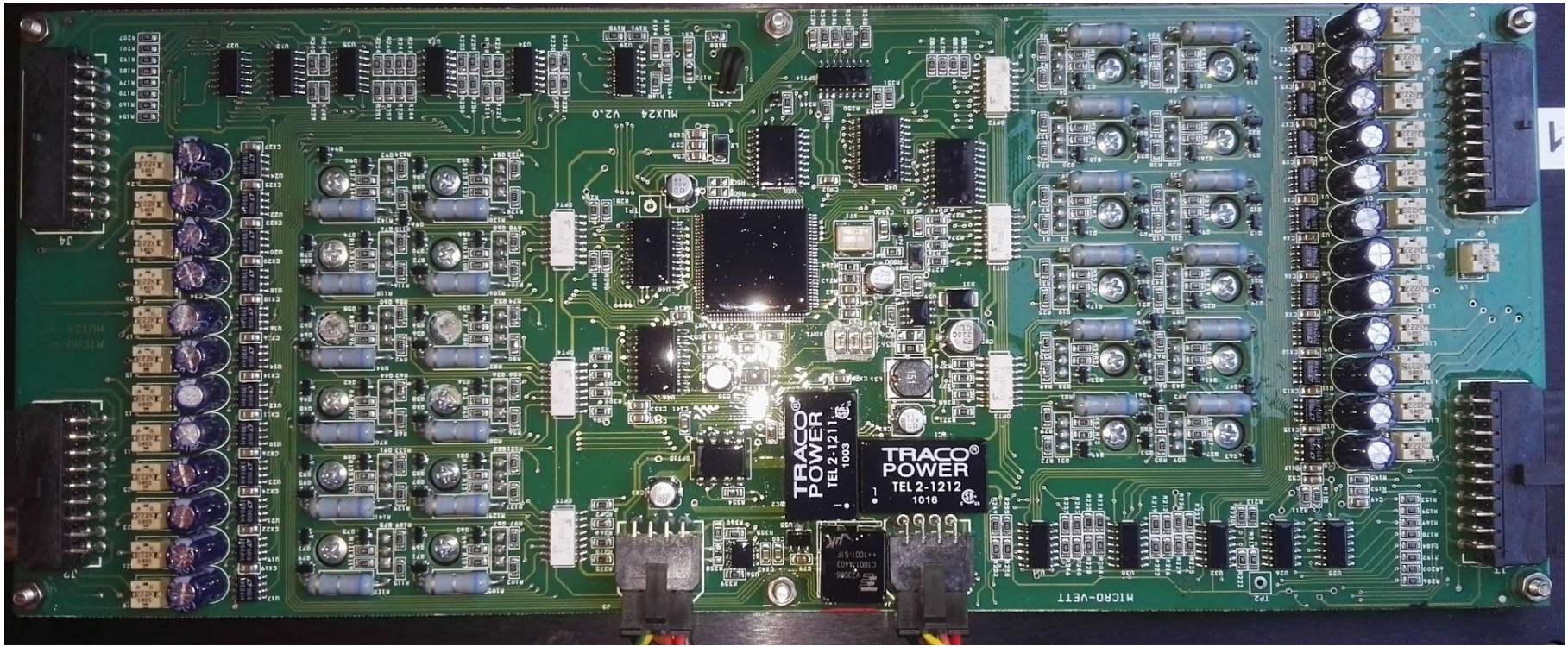


BMS MUX main pcb in front (can node or master??)



BMS pcb top side - mux 24 v2.0

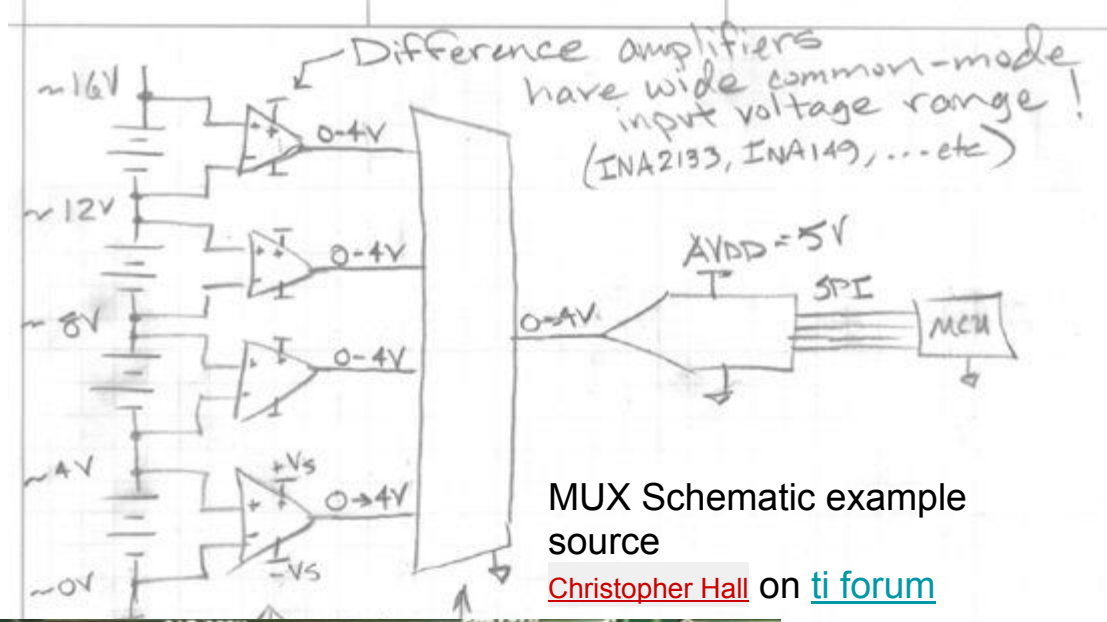
Connectors are molex 43045 microfit 3



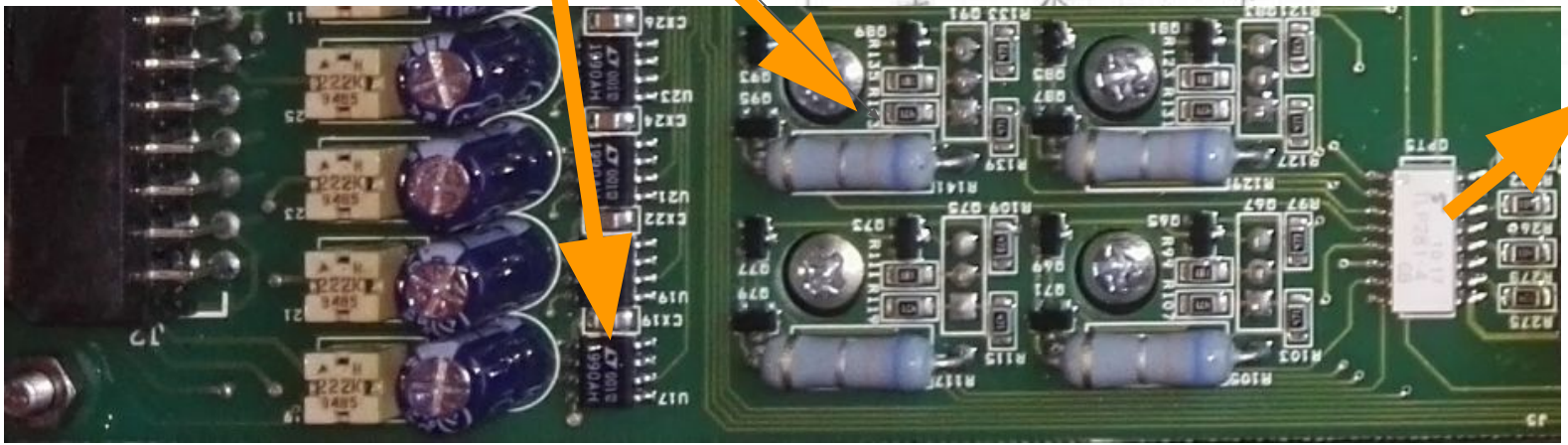
Battery cell modules

Cells measure/balance module are balanced by a classic transistor driven a load resistor.

Voltages are measured from all cells with multiplexer (called MU or MUX) also by diff amplifiers (LT 1990AH)

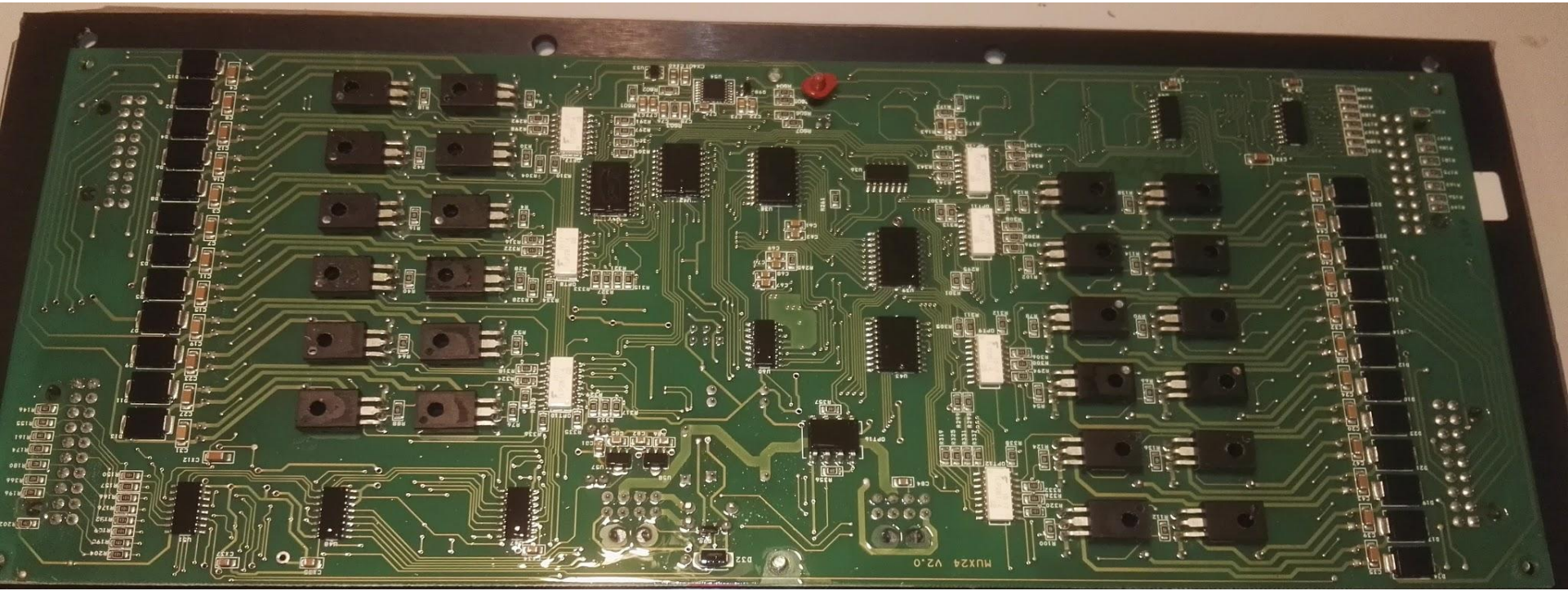


MUX Schematic example source
Christopher Hall on ti forum



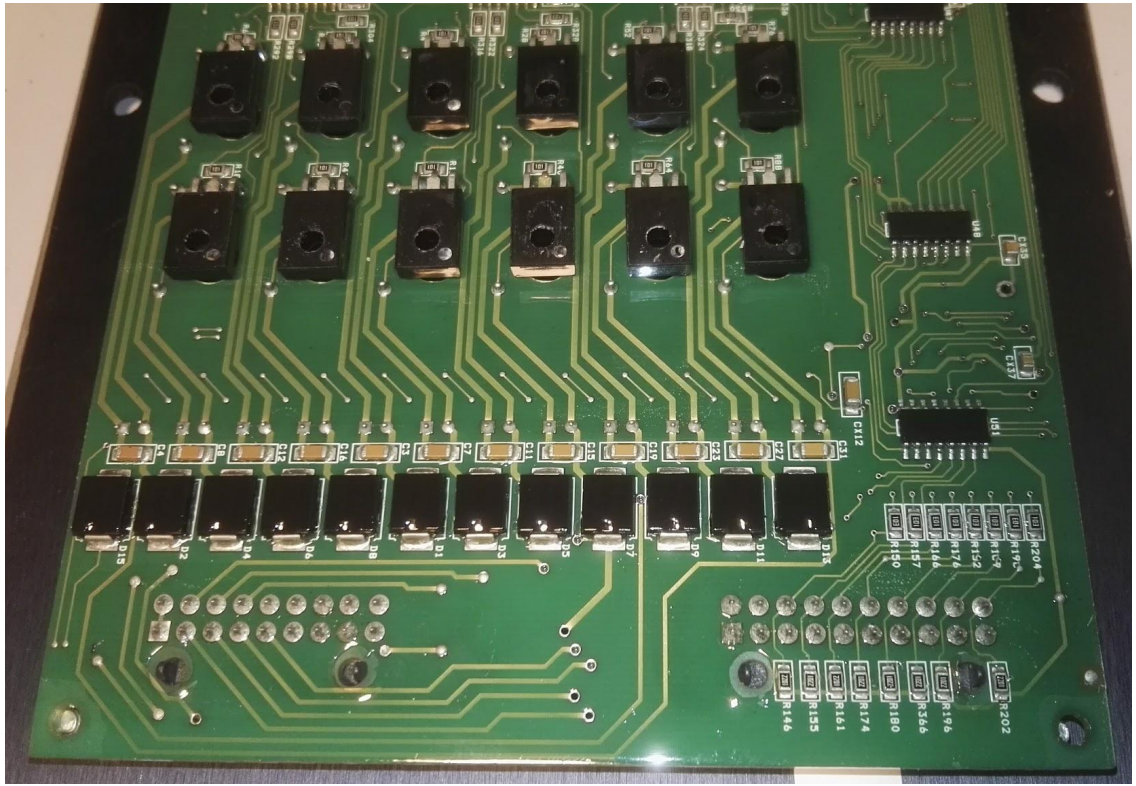
Opto coupler sends cell status to the microprocessor. Bottom off pcb has optocouplers for balancer control

BMS pcb bottom side - mux 24 v2.0



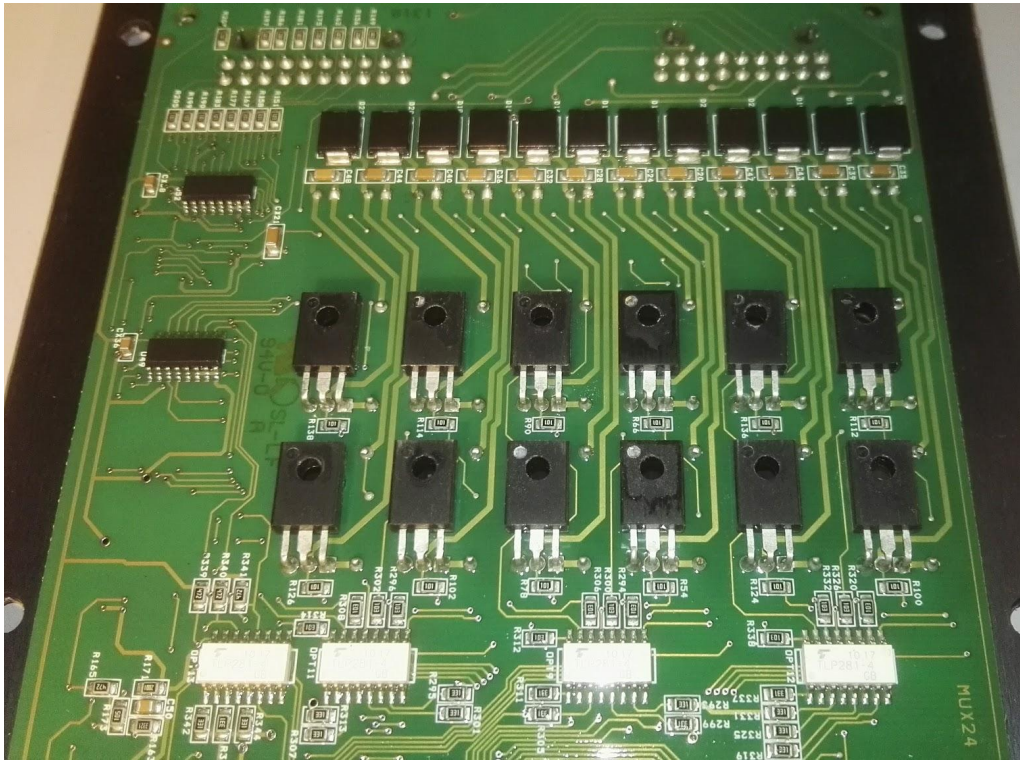
Bms cell input

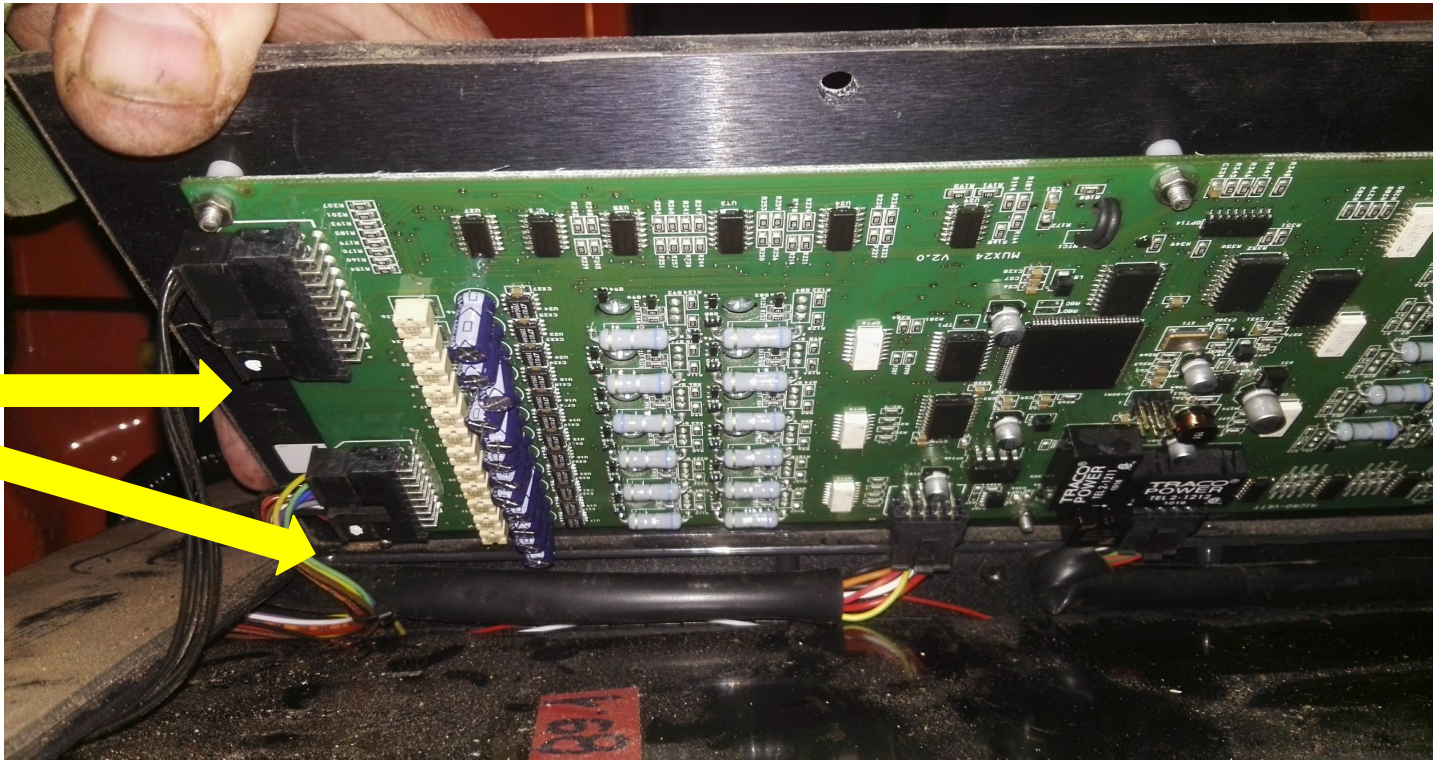
Diode’s protects the cell input



Components - 12 cells balancing

The balancing transistors/resistors are turned on / off by the microcontroller, through an optocoupler



BMS PCB connectors

Remember to place the connectors marked with a white DOT in the correct side of the pcb!!