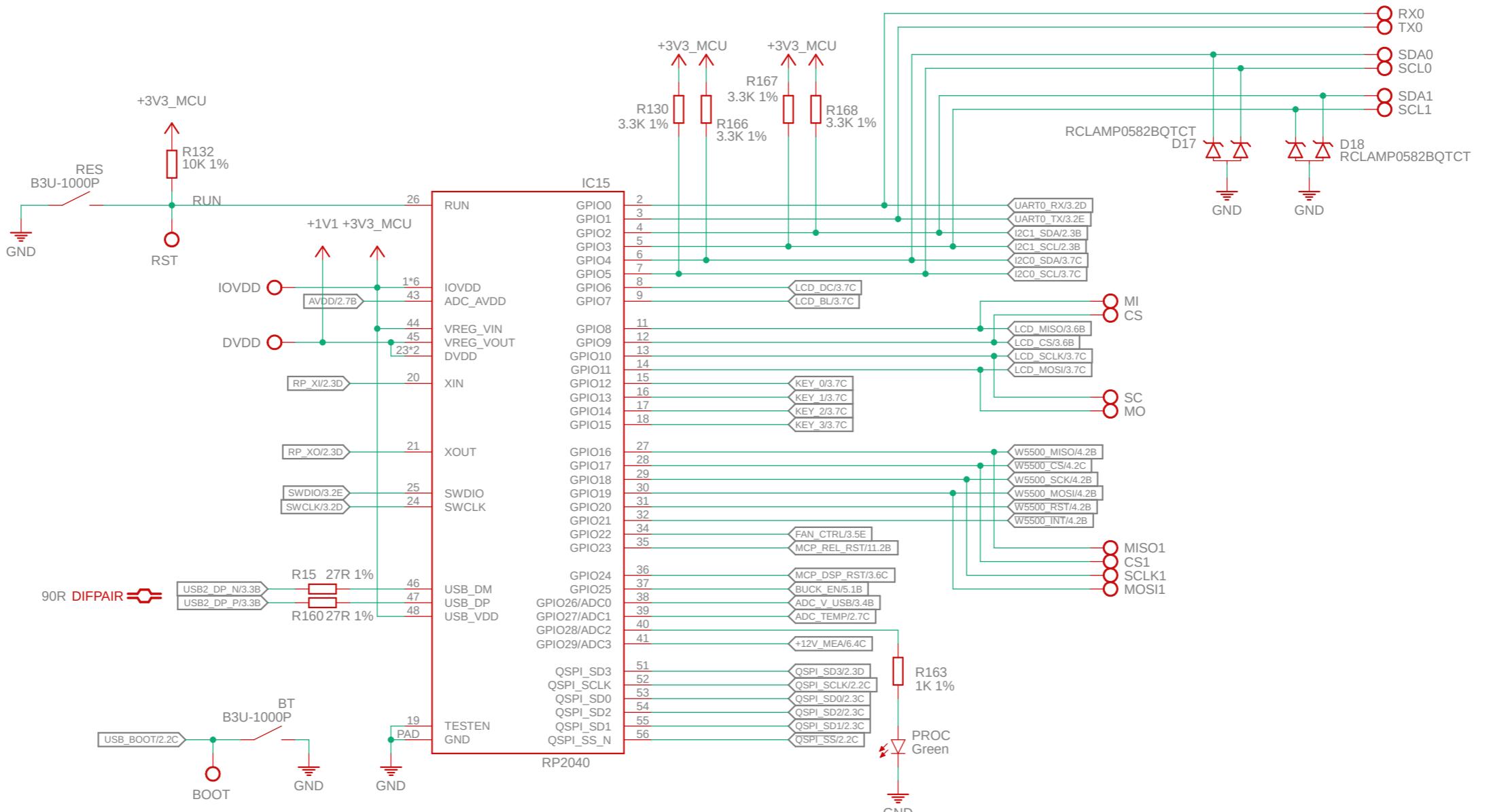
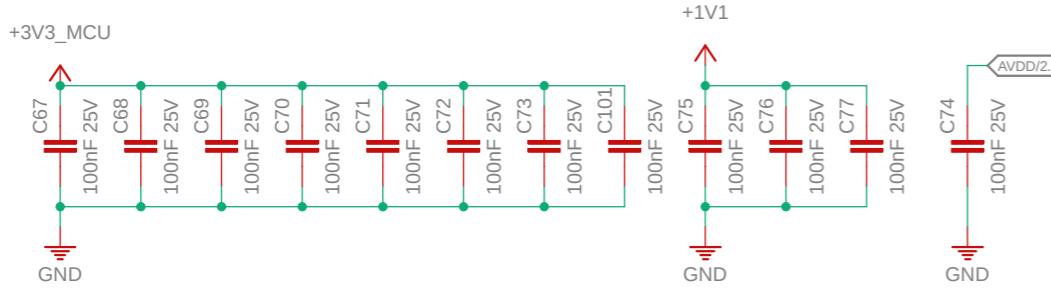


RP2040 MICROCONTROLLER



DECOUPLING



Title: Main Board

Sheet: RP2040 MICROCONTROLLER

File: ENERGIS_Rack-PDU_1.1.0

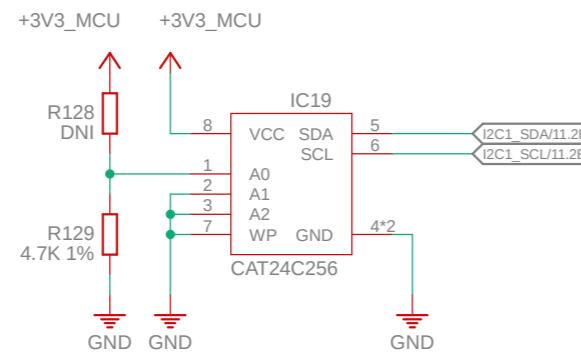
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DvidMakesThings

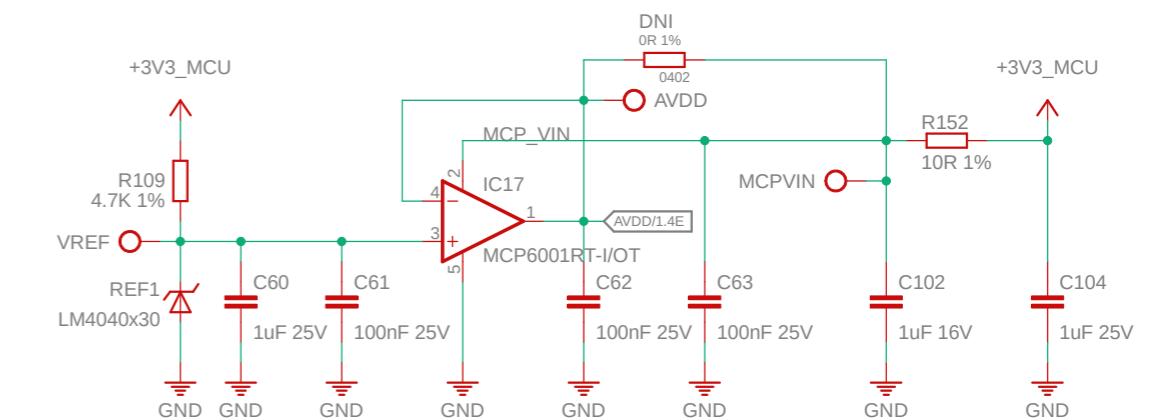
https://github.com/DvidMakesThings/HW_10-In-Rack_PDU Sheet: 1/11

PERIPHERALS

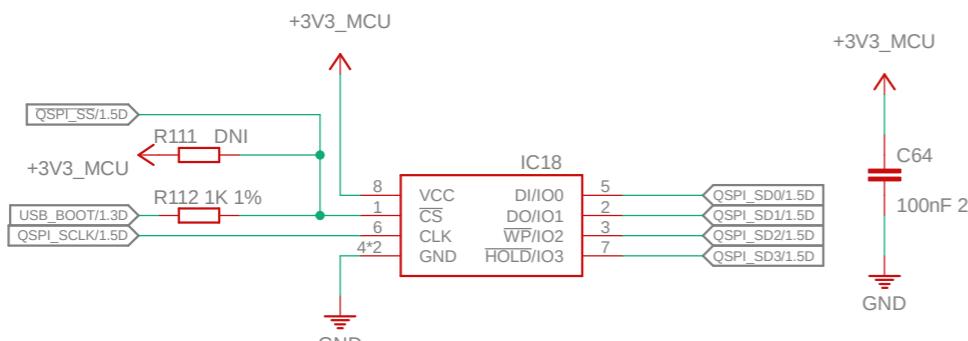
USER MEMORY



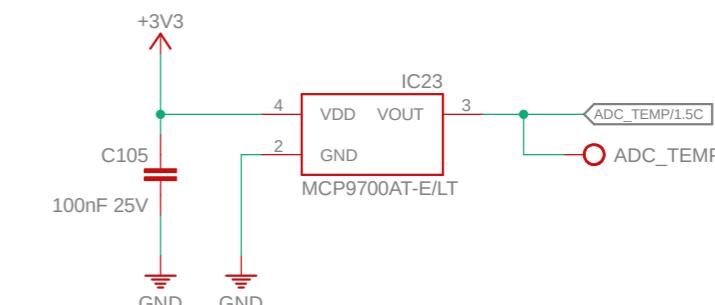
ADC VREF



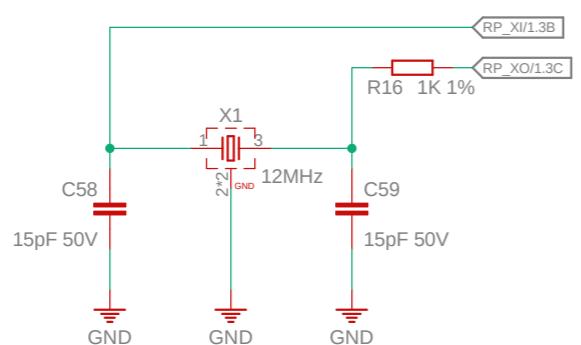
RP2040 FLASH



TEMPERATURE SENSOR



12MHZ CRYSTAL



Title: Main Board

Sheet: PERIPHERALS

File: ENERGIS_Rack-PDU_1.1.0

Size: A3 Date: not saved!

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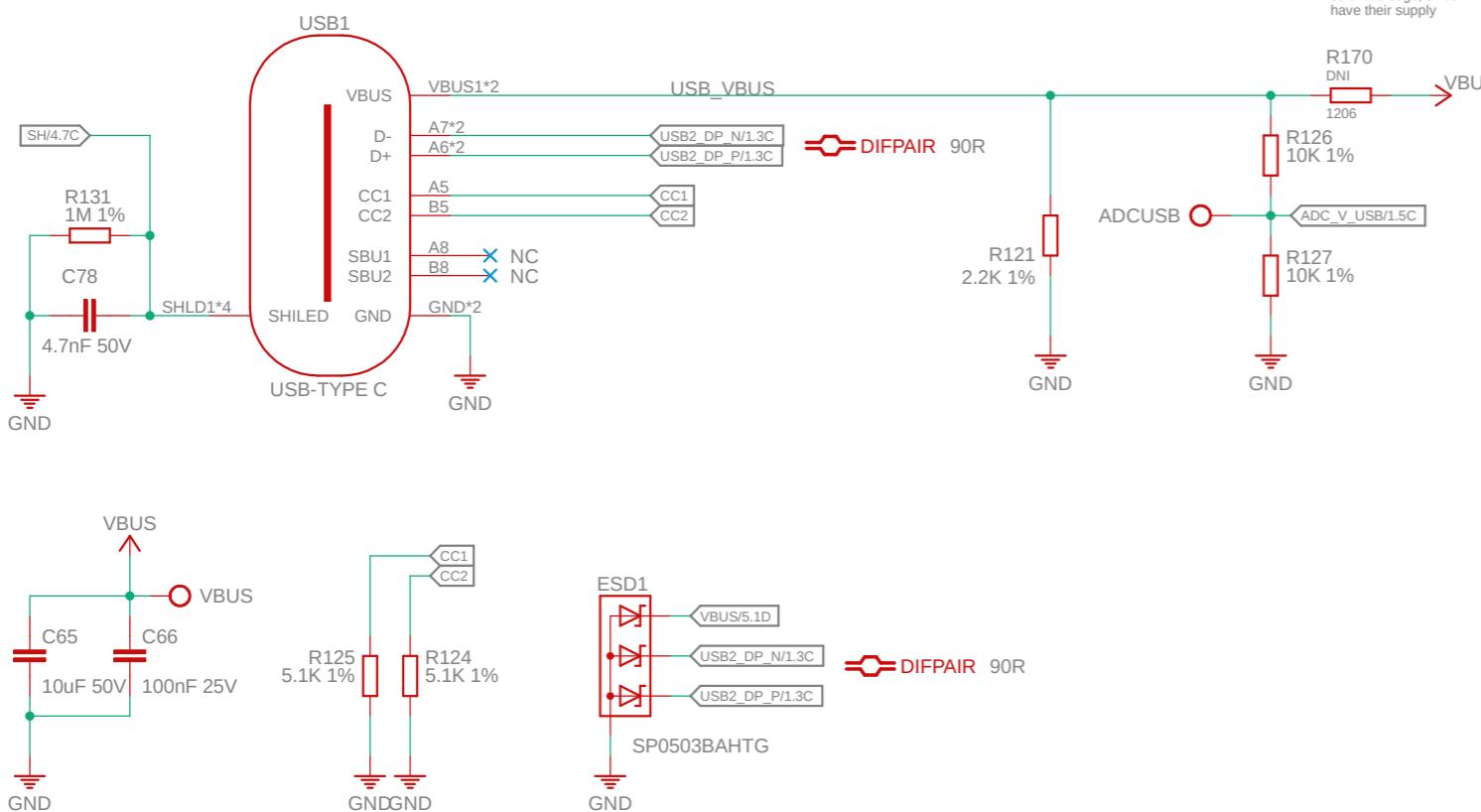
https://github.com/DvidMakesThings/HW_10-In-Rack_PDU

Rev: 1.1.0

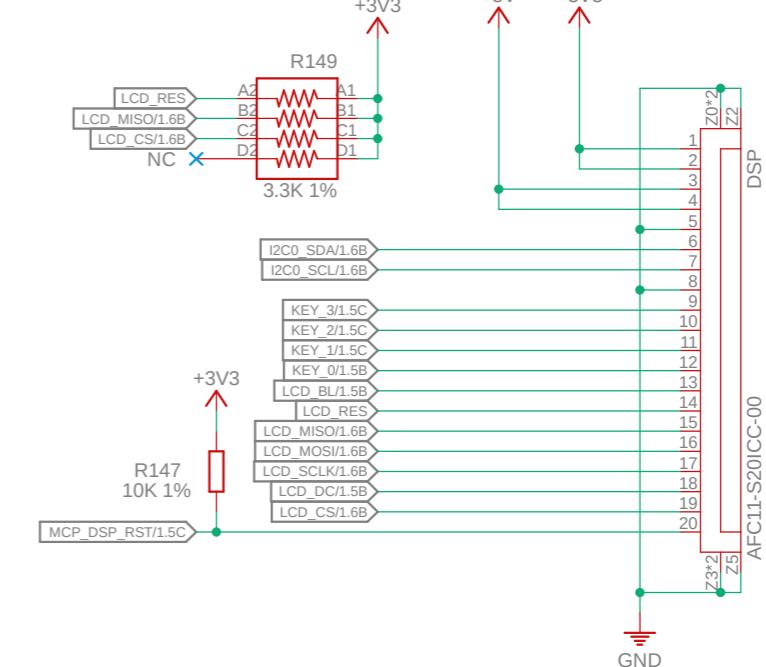
CONNECTORS

A

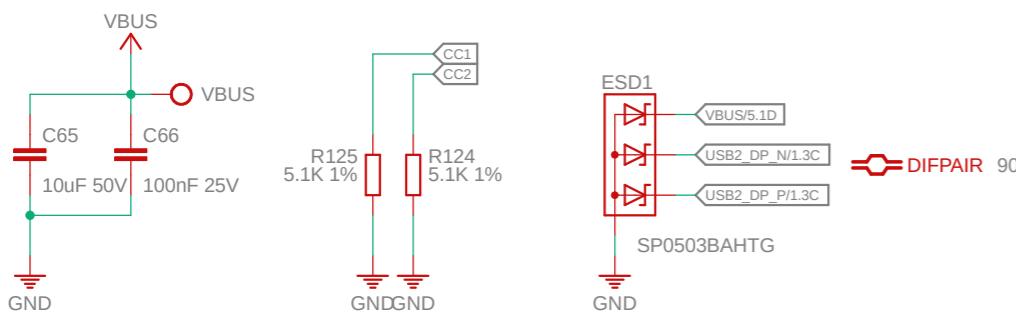
USB-C CONNECTOR



BOARD CONNECTOR

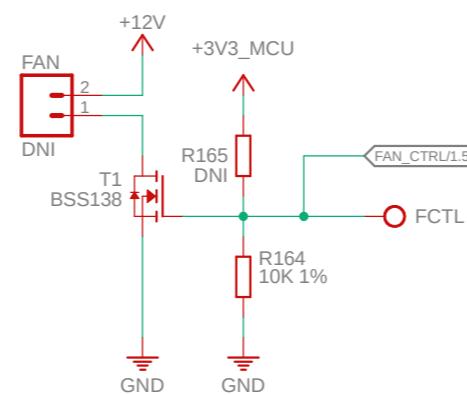


B



DEBUG CONNECTOR

FAN CONNECTOR



C

D

E

Title:
Main Board

Sheet: CONNECTORS

File: ENERGIS_Rack-PDU_1.1.0

Size: A3 **Date:** not saved!

DvidMakesThings

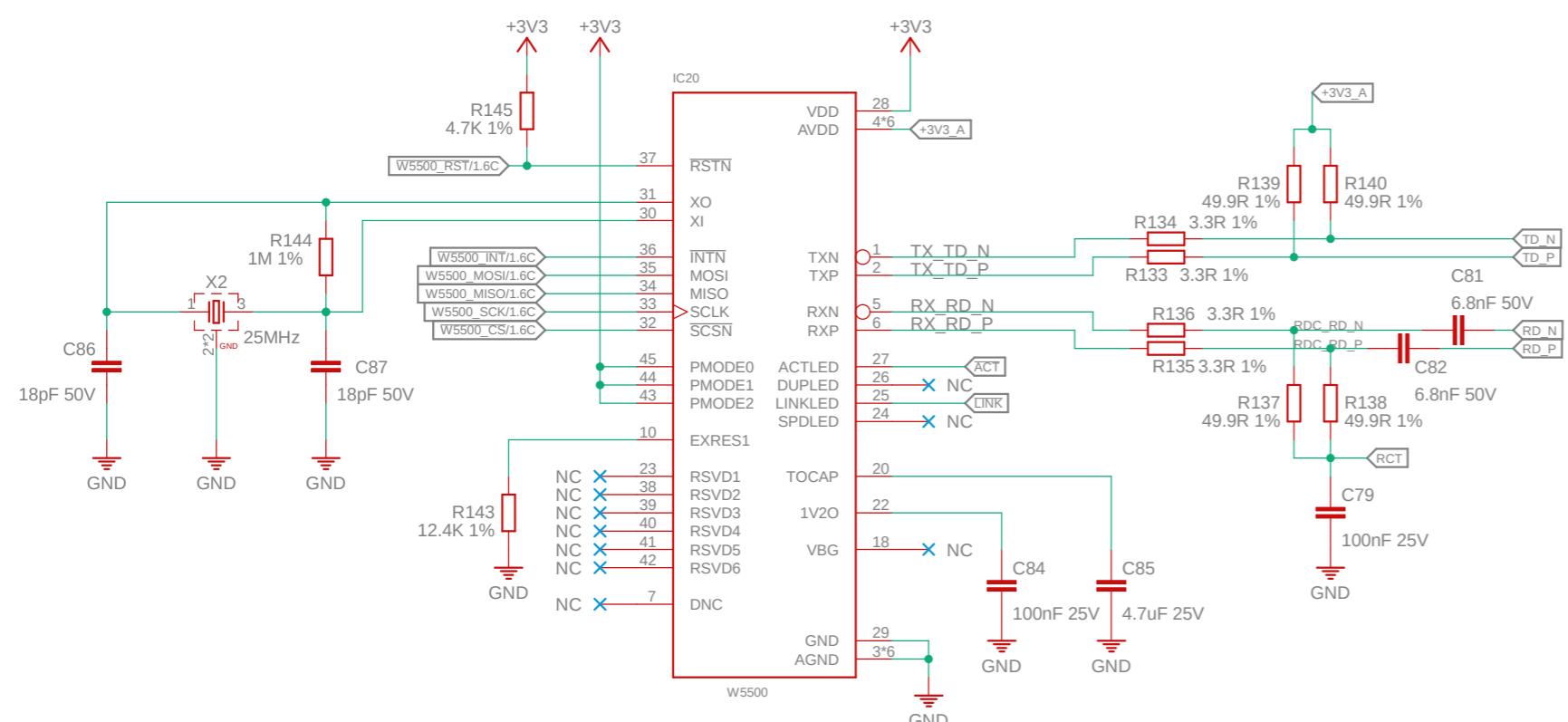
https://github.com/DvidMakesThings/HW_10-In-Rack_PDU **Sheet:** 3/11

Rev: 1.1.0

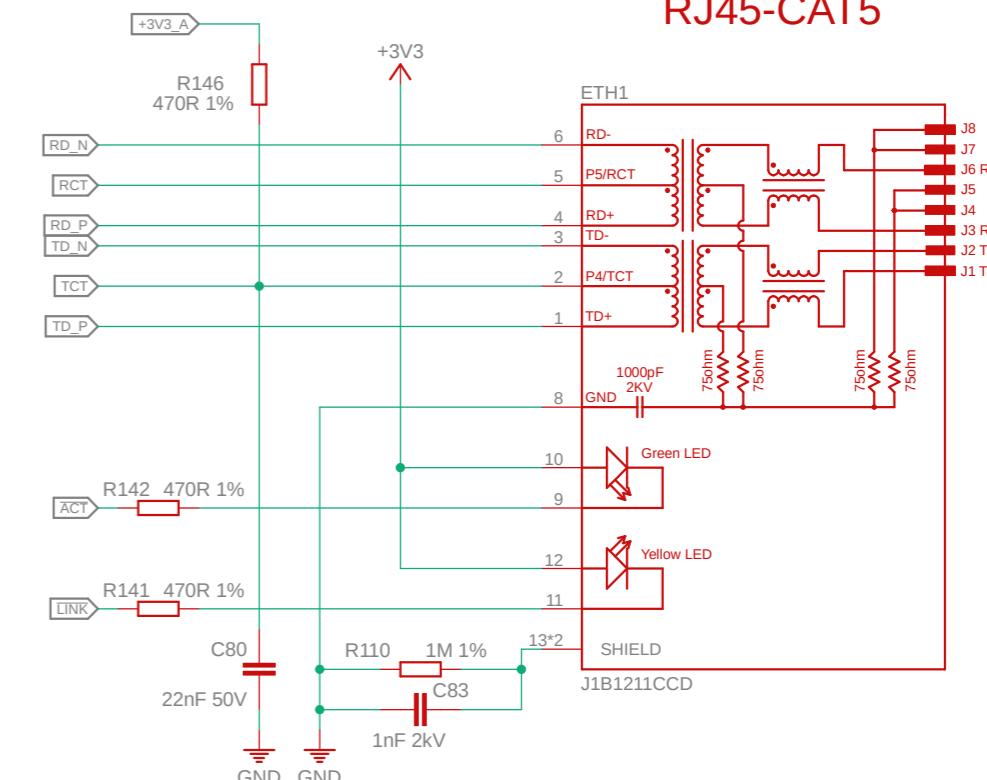
1 2 3 4 5 6 7 8

W5500 ETHERNET CONTROLLER

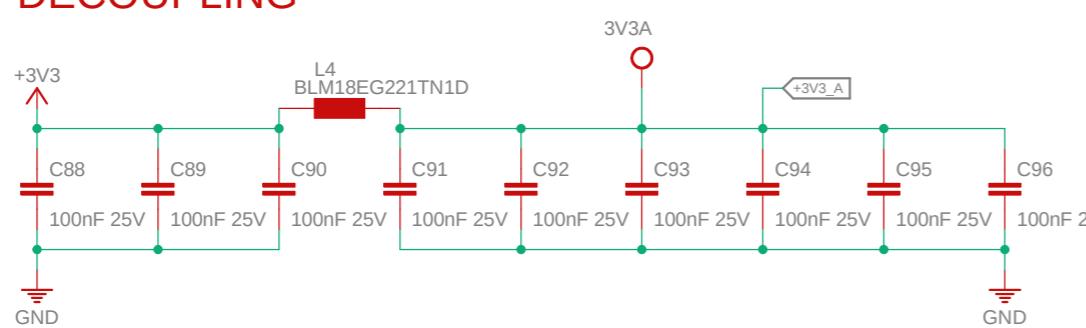
A



RJ45-CAT5



DECOUPLING



Title:

Main Board

Sheet: W5500 ETHERNET CONTROLLER

File: ENERGIS_Rack-PDU_1.1.0

Size: A3 Date: not saved!

DvidMakesThings

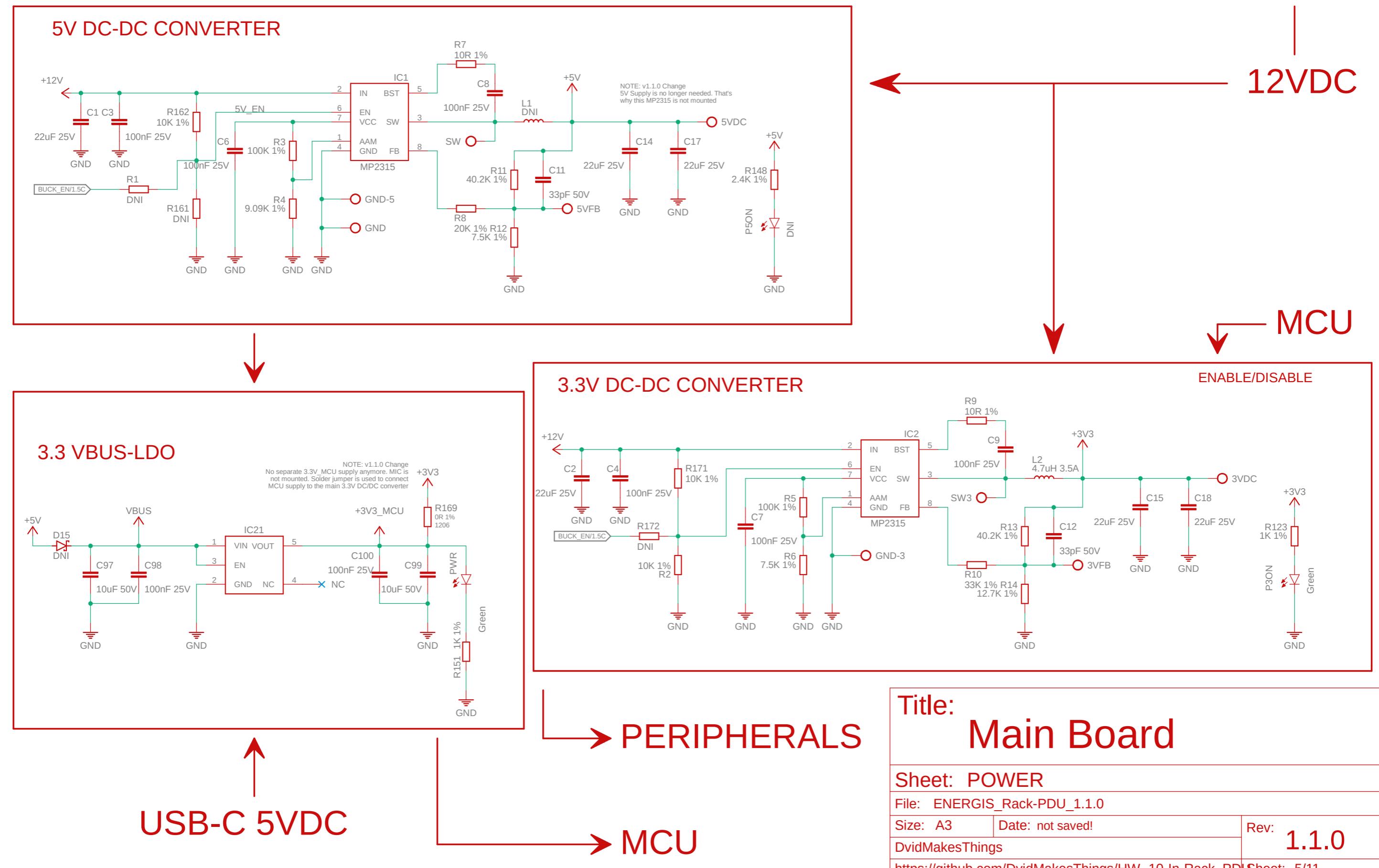
https://github.com/DvidMakesThings/HW_10-In-Rack_PDU

Rev: 1.1.0

1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8

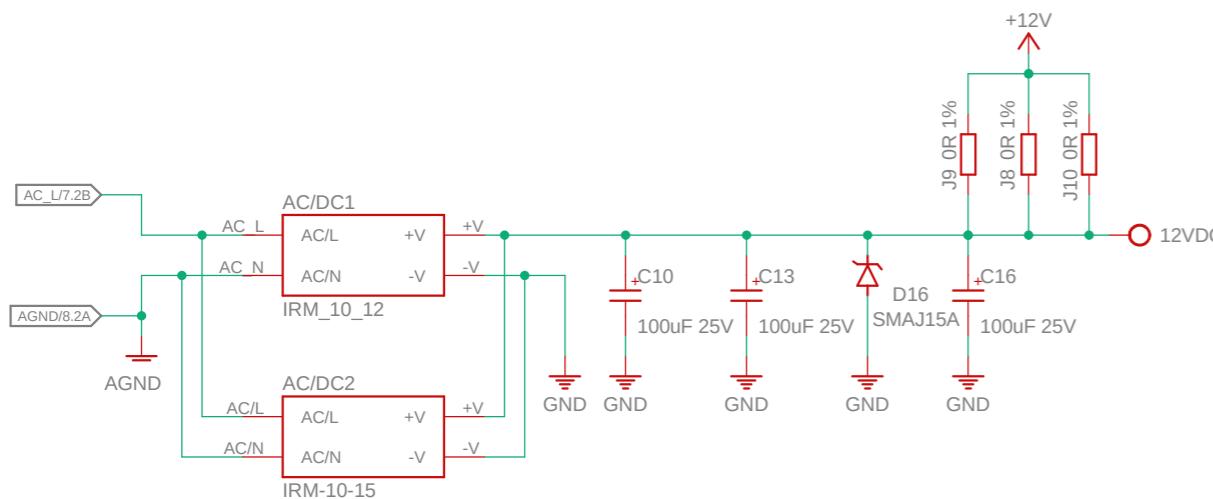
POWER



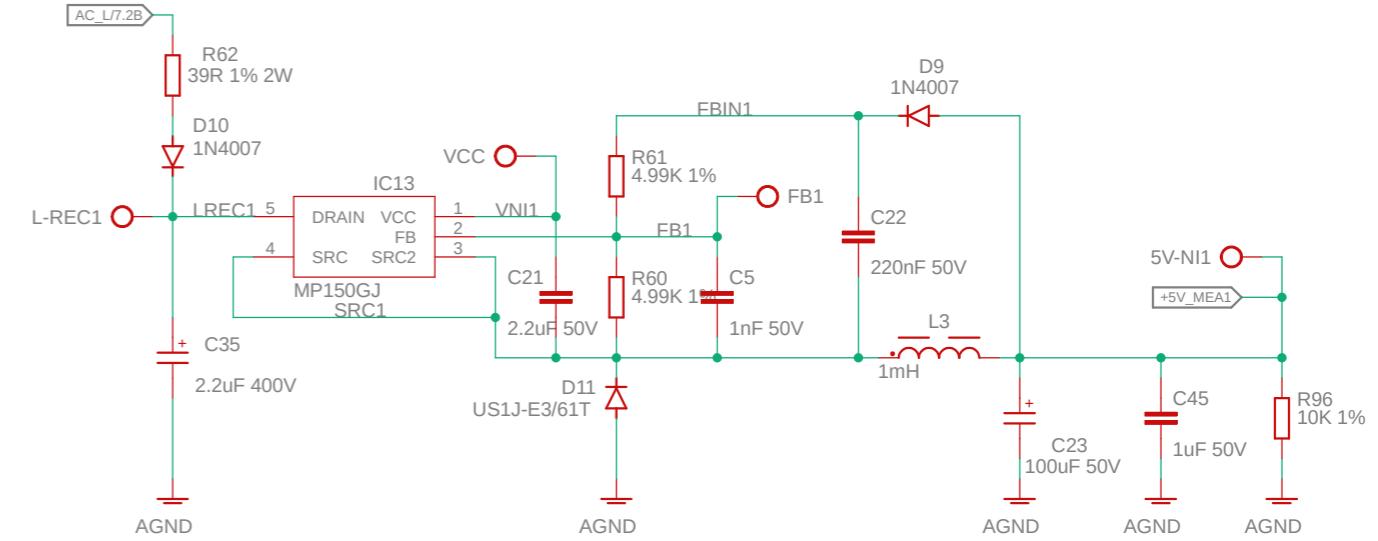
1 2 3 4 5 6 7 8

AC-POWER

12V - 10W FLYBACK CONVERTER



5V 200MA NON-ISOLATED POWER SUPPLY



AC-INPUT

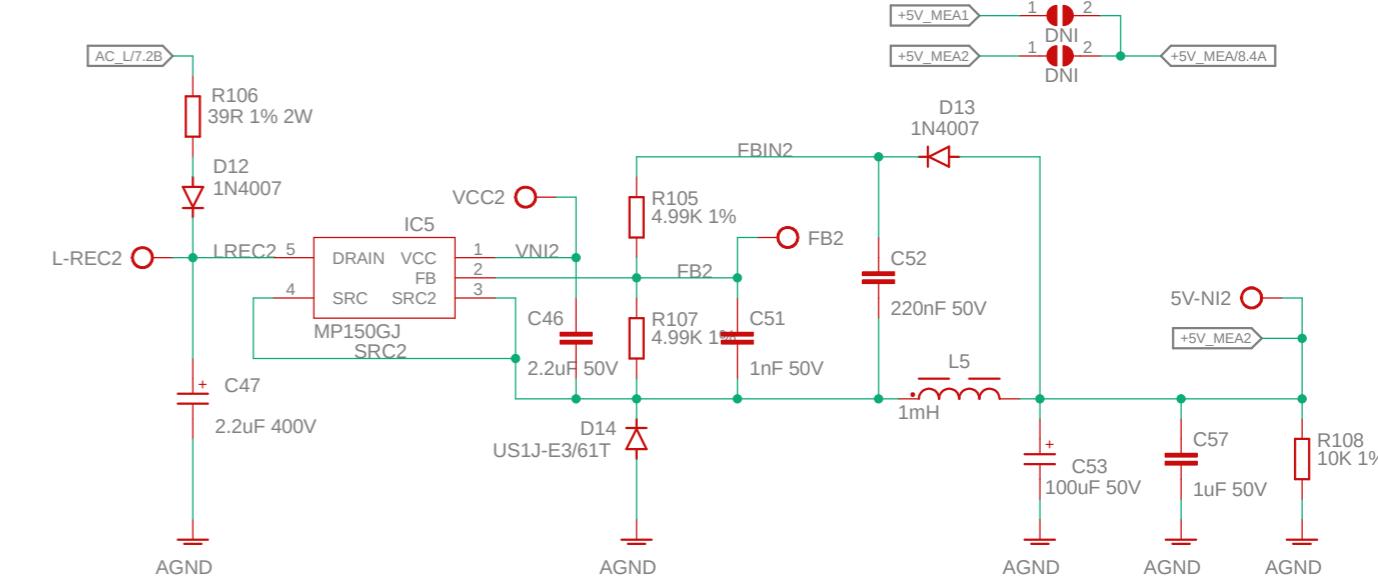


Design Note — 12 V supply (Mean Well IRM-10 series), universal 110 V/230 V AC

This schematic uses the Mean Well IRM-10 encapsulated AC-DC module (e.g., IRM-10-12) to produce 12 VDC. The IRM-10 series is specified for a wide input range of 85–305 VAC (47–440 Hz) and 120–430 VDC, meaning it operates from both ~115 VAC and ~230 VAC mains with no selector or changes to the circuit. Safety approvals (IEC/UL/EN 62368-1), Class II construction, and built-in EMI/EMC compliance are provided by the module.

Design Note — 5 V / 200 mA non-isolated supply (MP150), universal 110 V/230 V AC

This design uses MPS MP150 in high-side buck to generate 5 V/200 mA directly from rectified mains. MP150 integrates a 500 V MOSFET (Drain-to-Source rating 500 V), covering the ~325 VDC peak from 230 VAC and ~155 VDC from 115 VAC, so the circuit from 85–265 VAC ("universal input").



Title:
Main Board

Sheet: AC-POWER

File: ENERGIS_Rack-PDU_1.1.0

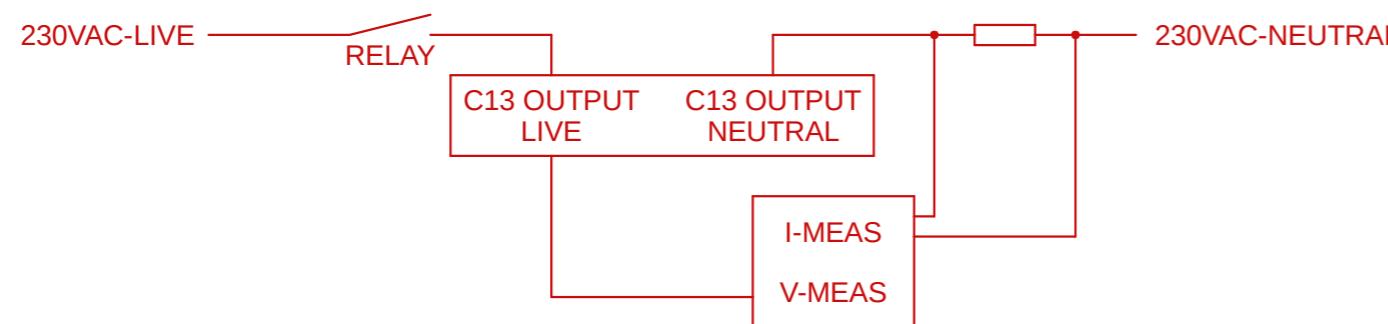
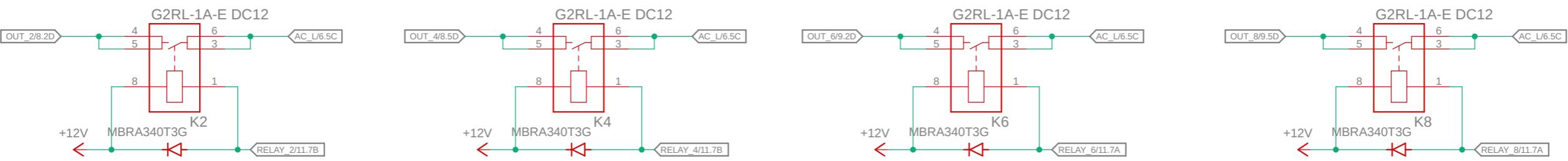
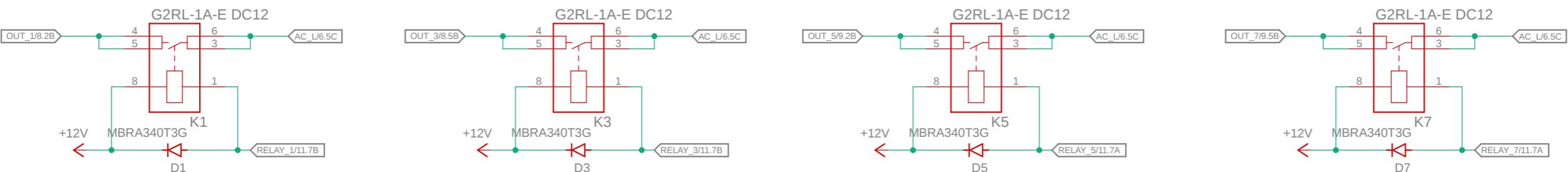
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Rev: 1.1.0

OUTPUT RELAYS



Title:
Main Board

Sheet: OUTPUT RELAYS

File: ENERGIS_Rack-PDU_1.1.0

Size: A3 **Date:** not saved!

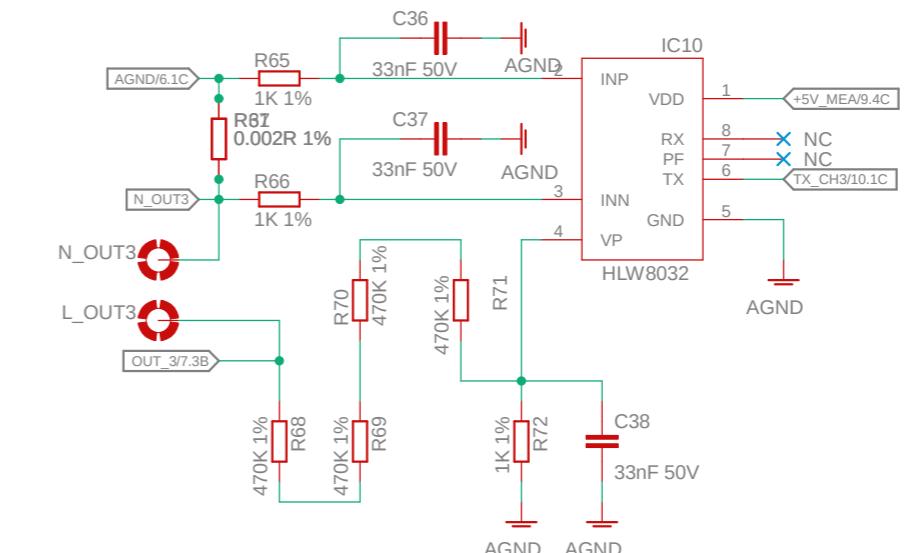
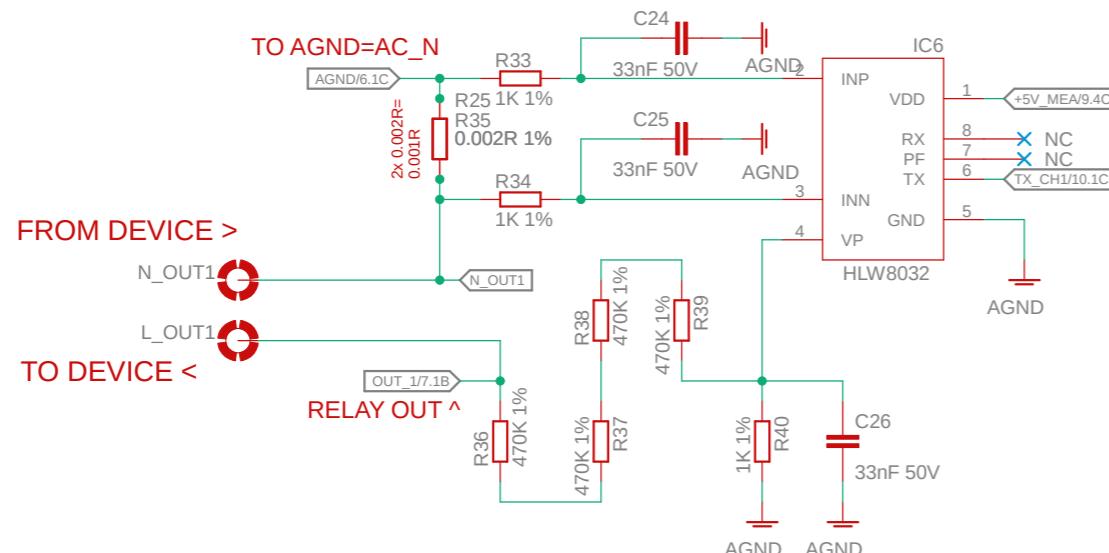
DvidMakesThings

https://github.com/DvidMakesThings/HW_10-In-Rack_PDU_Sheet: 7/11

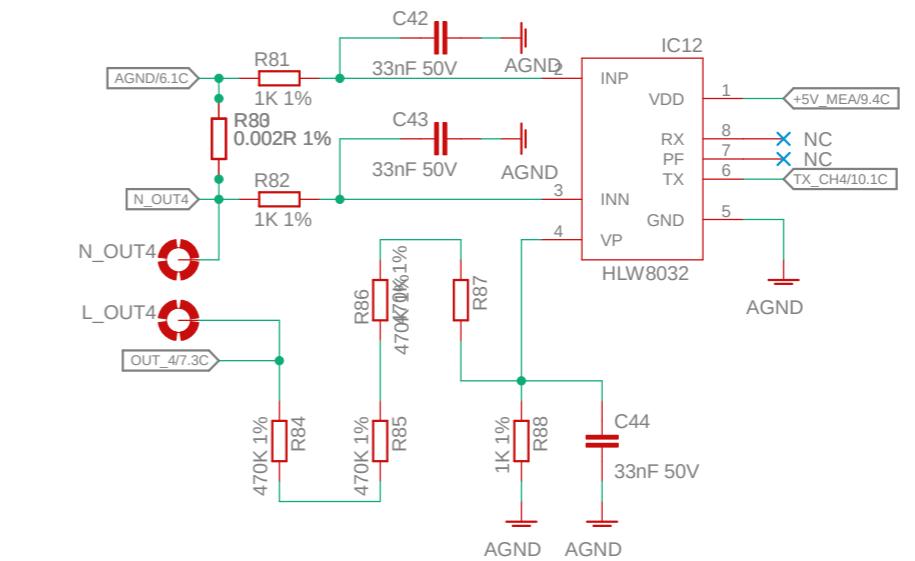
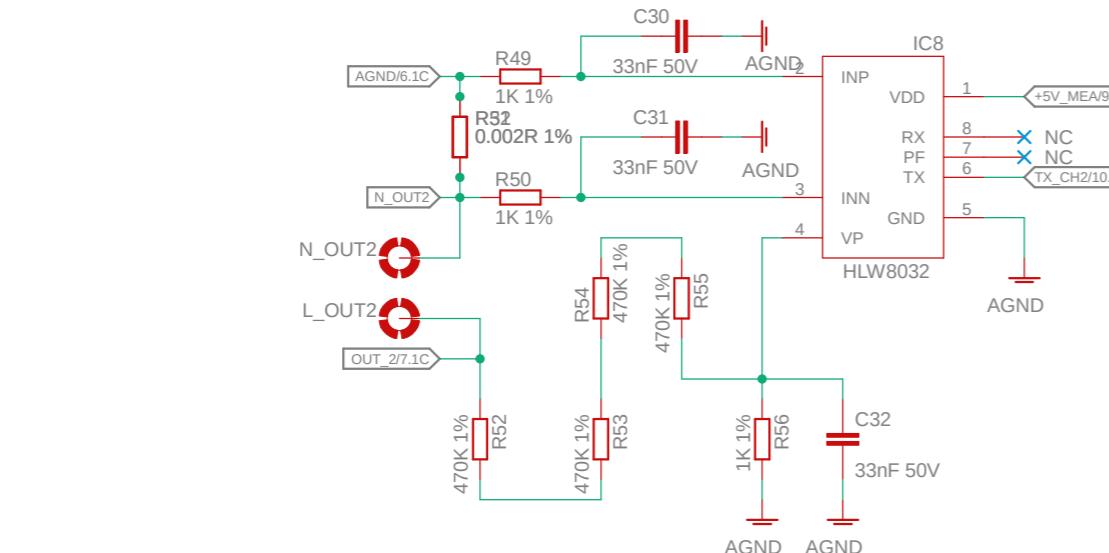
Rev: 1.1.0

AC CHANNEL MEASUREMENT I.

A



B



D

E

Title:

Main Board

Sheet: AC CHANNEL MEASUREMENT I.

File: ENERGIS_Rack-PDU_1.1.0

Size: A3 Date: not saved!

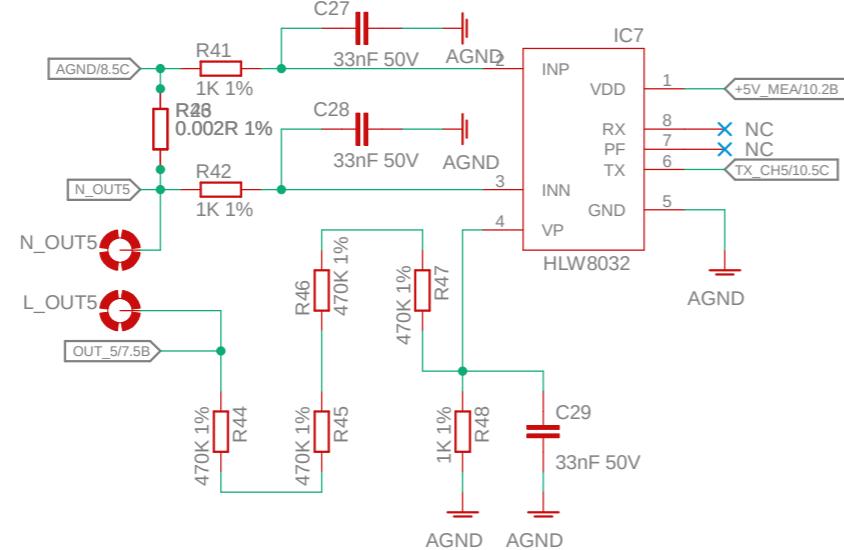
DvidMakesThings

https://github.com/DvidMakesThings/HW_10-In-Rack_PDU

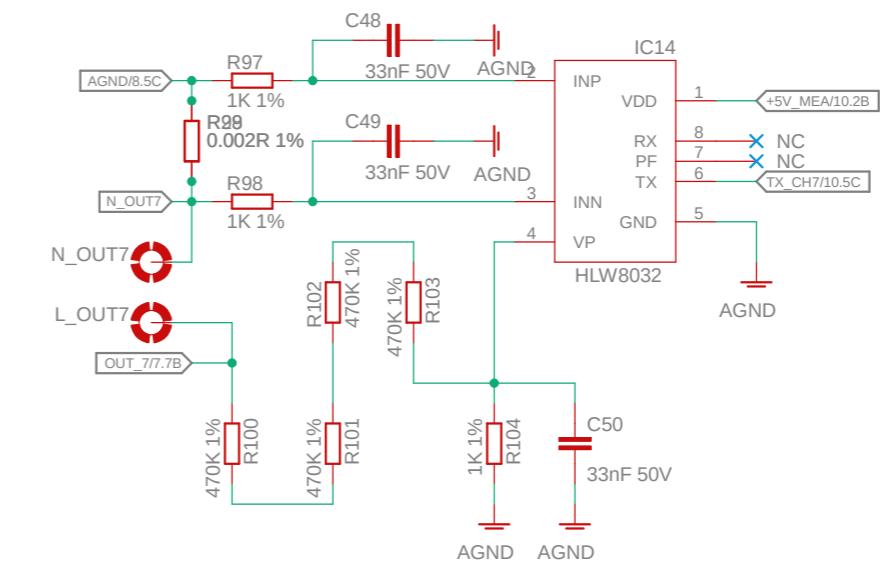
Rev: 1.1.0

AC CHANNEL MEASUREMENT II.

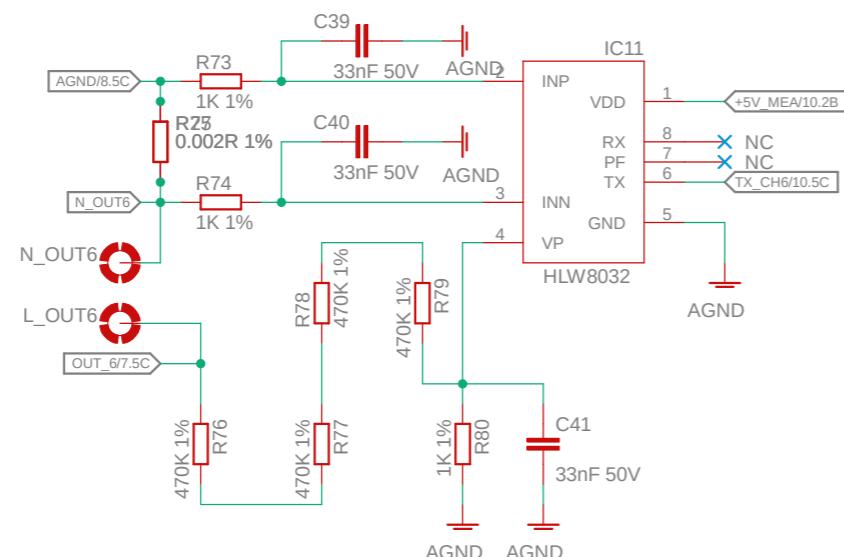
A



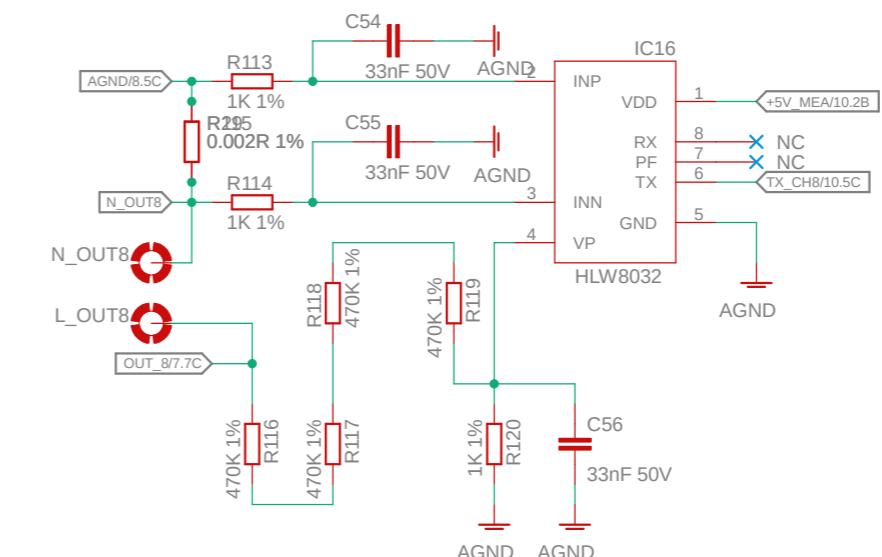
B



C



D



Title:
Main Board

Sheet: AC CHANNEL MEASUREMENT II.

File: ENERGIS_Rack-PDU_1.1.0

Size: A3 **Date:** not saved!

DvidMakesThings

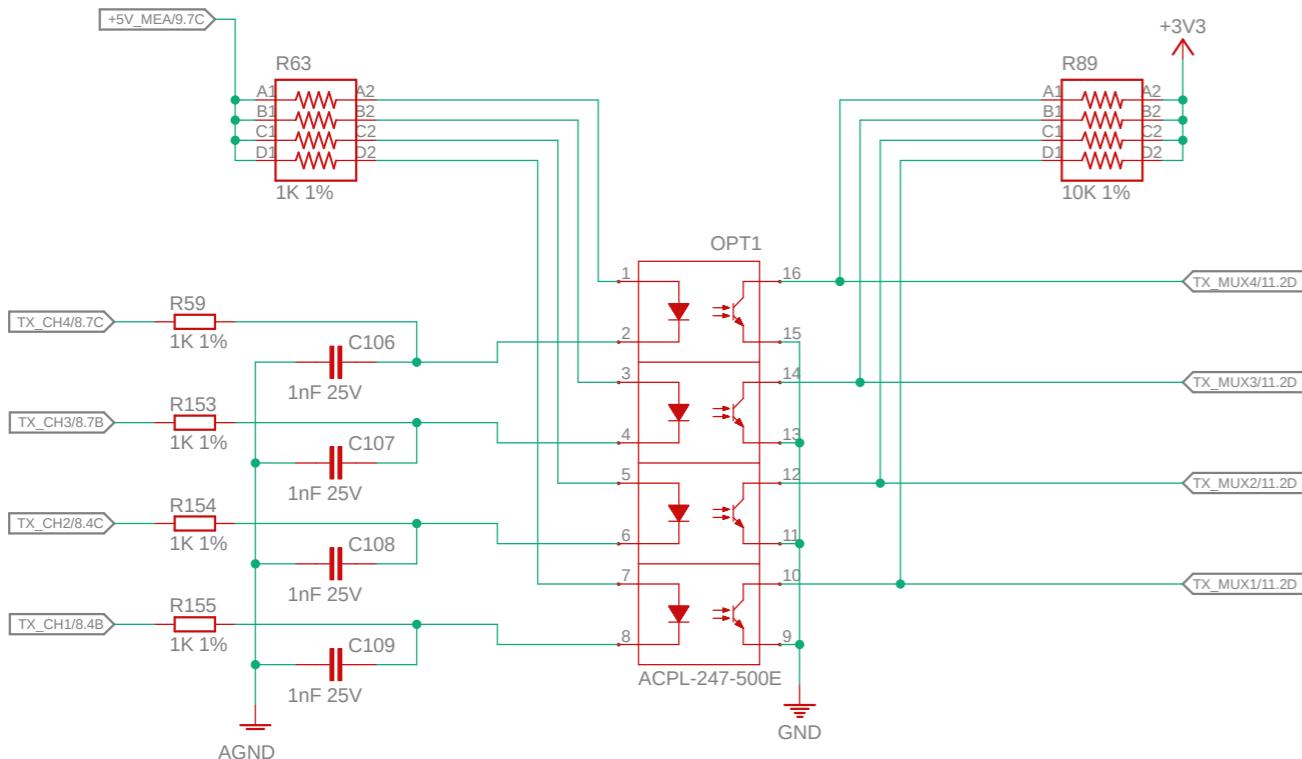
https://github.com/DvidMakesThings/HW_10-In-Rack_PDU **Sheet:** 9/11

Rev: 1.1.0

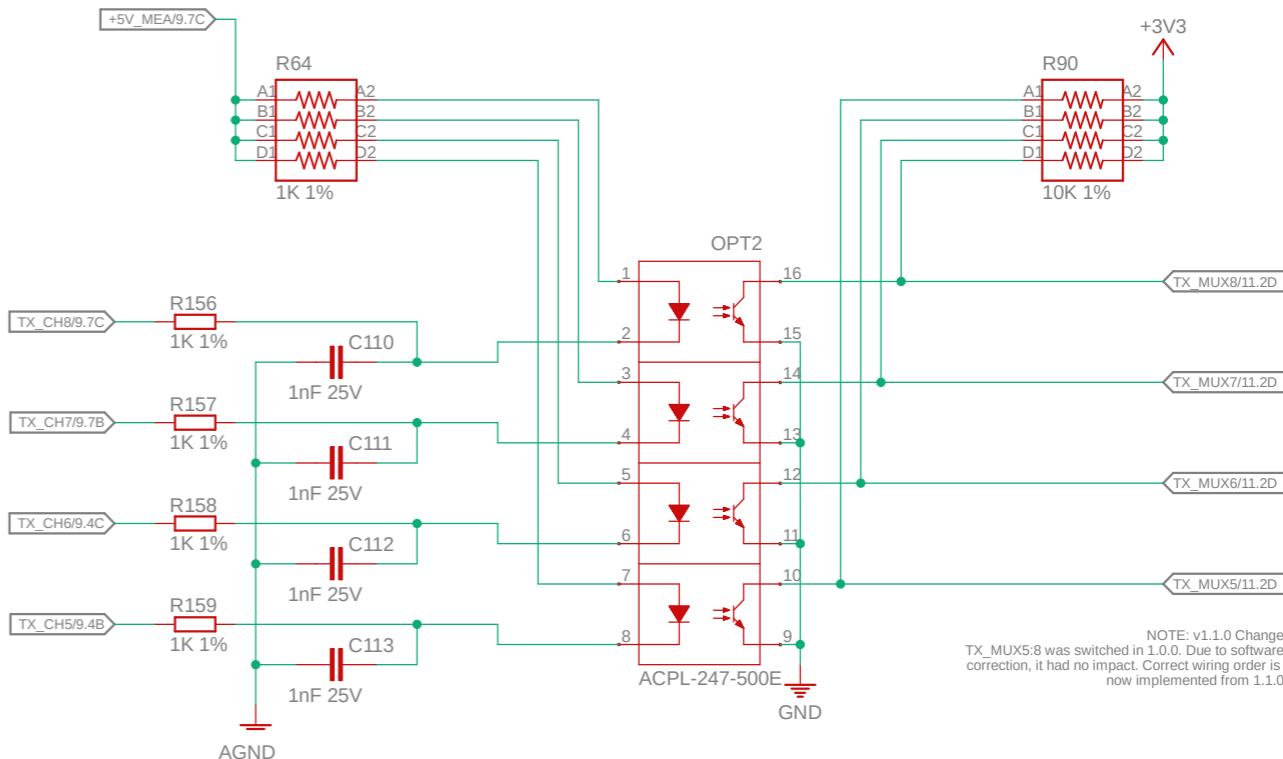
1 2 3 4 5 6 7 8

SERIAL OPTOISOLATOR

A



B



C

NOTE: v1.1.0 Change
TX_MUX5:8 was switched in 1.0.0. Due to software
correction, it had no impact. Correct wiring order
is now implemented from 1.1.0

Title:
Main Board

Sheet: SERIAL OPTOISOLATOR

File: ENERGIS_Rack-PDU_1.1.0

Size: A3 Date: not saved!

DvidMakesThings

https://github.com/DvidMakesThings/HW_10-In-Rack_PDU

Rev: **1.1.0**

1 2 3 4 5 6 7 8

