

Note 1.1: D1-D5, L2 and Q1 requires thermal bridge to the external heatsink. See layer 114 on Board editor for an example.  
 Note 1.2: WE 7447709330, WE 7443551331, Coilcraft MSS1210-333, Coilcraft XAL1510-333, Vishay IHL4040DZER470M11, etc.  
 Note 1.3: Use 240K for 30 VAC main transformer  
 Note 1.4: Install only if 100% Duty cycle feature is not needed  
 Note 1.5: Use R020 for 0-3.12 A or R015 for 0-4.16 A range

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 More info at <http://www.envox.hr/eez>  
 Repository: <https://github.com/eez-open>



SMPS power pre-regulator with 100% duty cycle

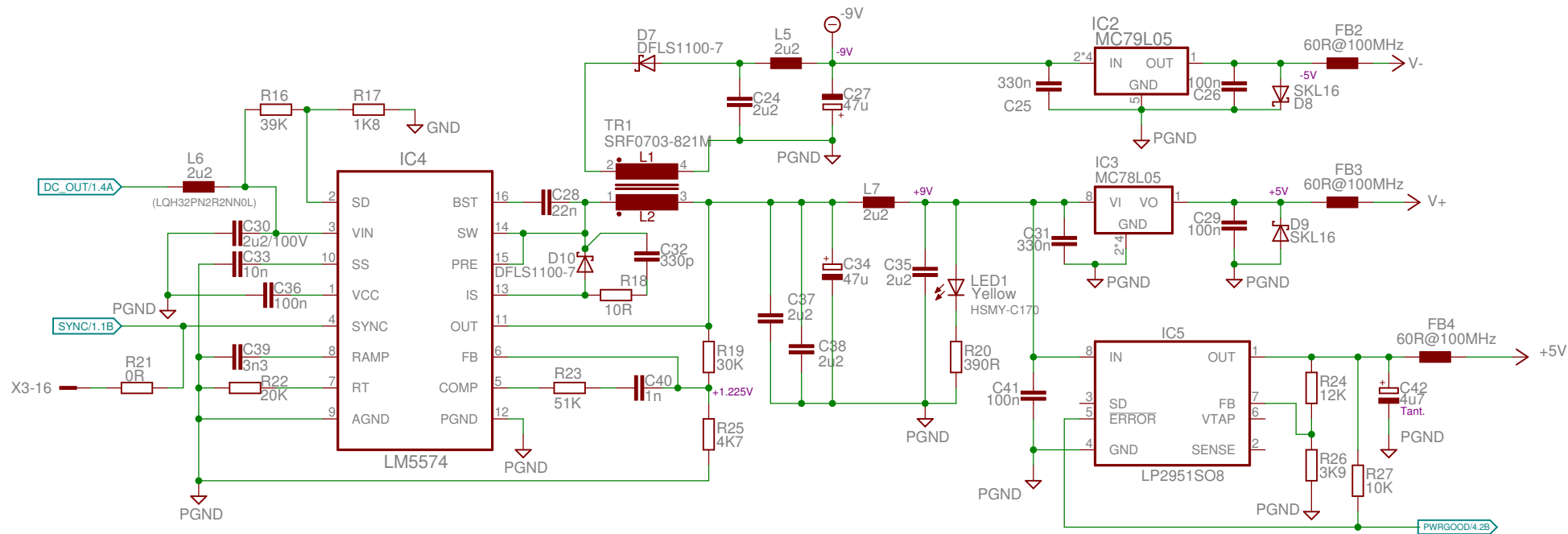
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Bias power supply with SMPS pre-regulator

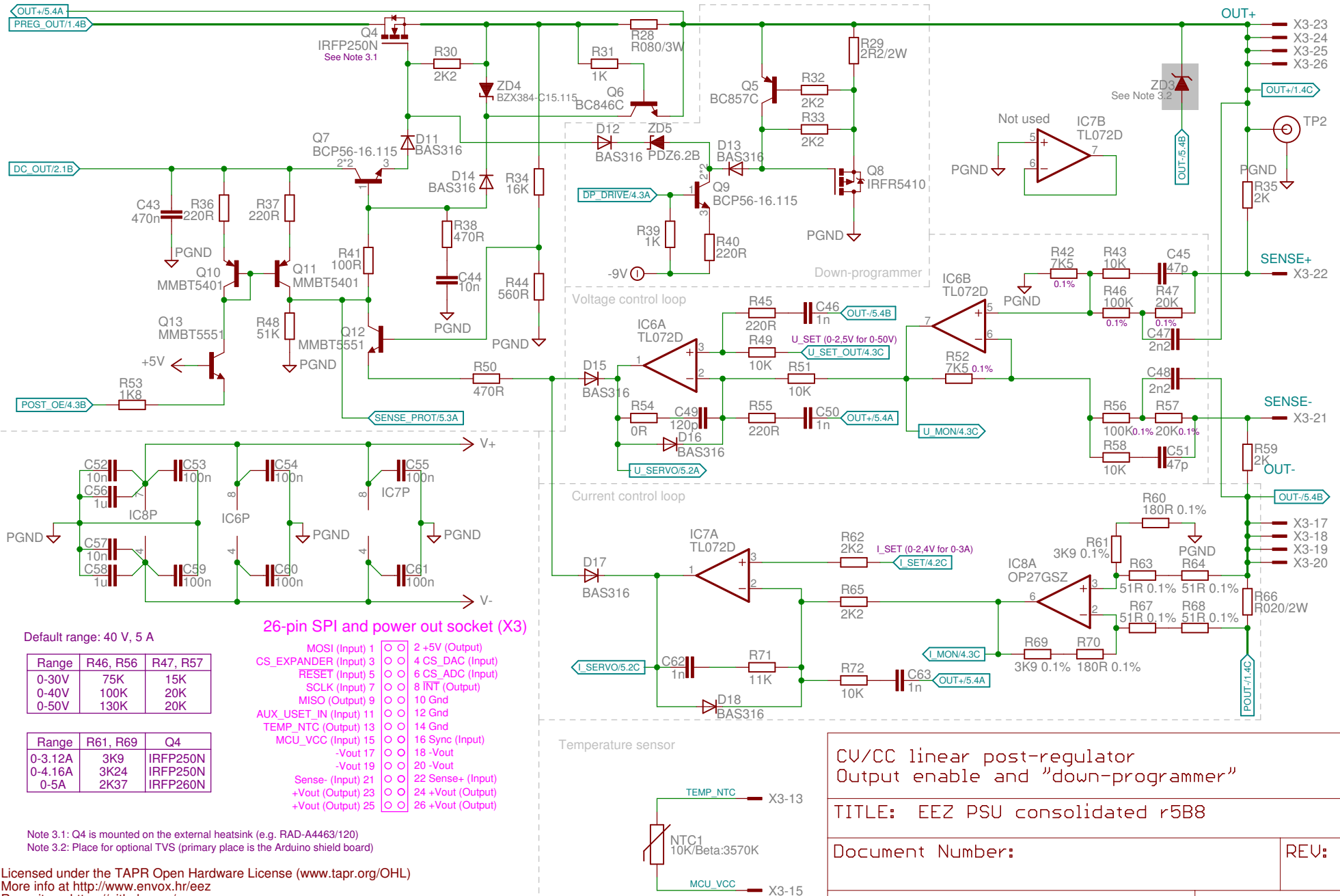
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# Digital control (SPI)

SSW-113-02-T-D-RA

X3-9 PS\_MISO

X3-5 PS\_RESET

X3-1 PS\_MOSI

X3-7 PS\_SCLK

X3-3 CS\_EXPANDER

+5V

X3-2

X3-10

X3-12

X3-14

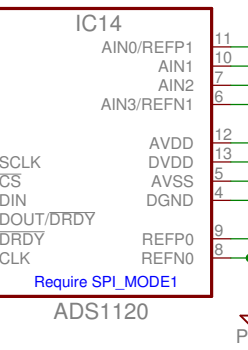
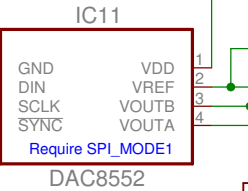
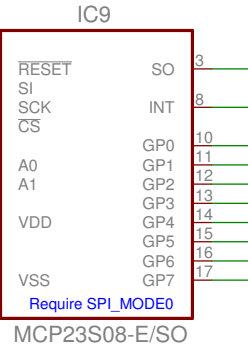
PGND

X3-8 INT

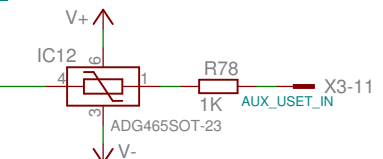
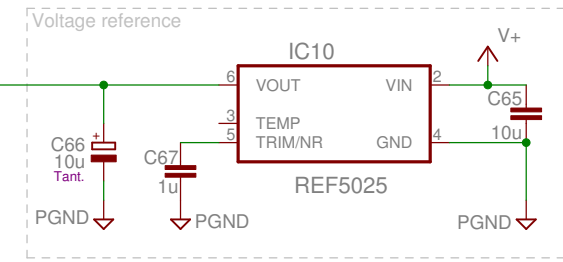
JP2-0R

X3-4 CS\_DAC

X3-6 CS\_ADC



I/O Expander		
Bit	Function	Direction
0	Sense error	Output
1	Down programmer disable	Output
2	CC	Input
3	Set 100% duty cycle	Output
4	Remote programming	Output
5	CV	Input
6	Power good	Input
7	Output enable	Output



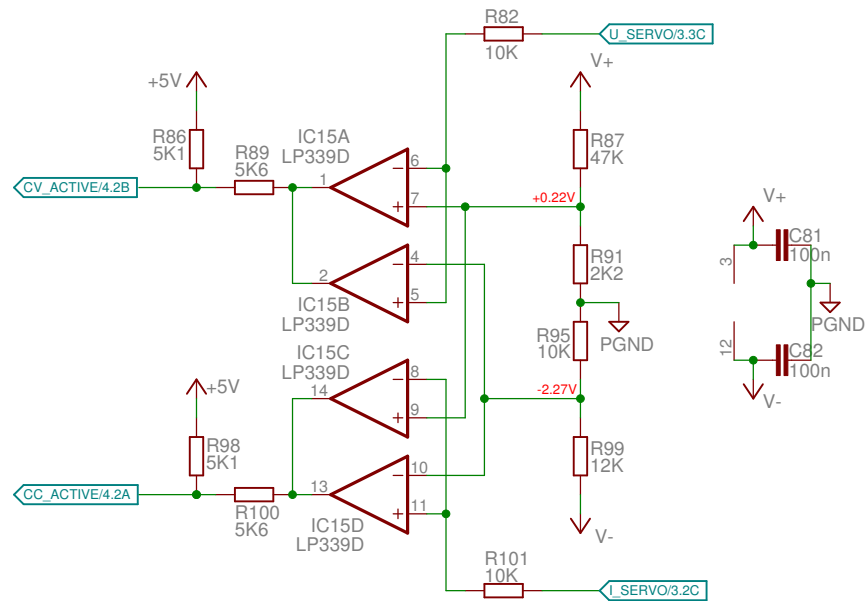
SPI I/O expander, DAC, ADC, Voltage reference  
Remote programming

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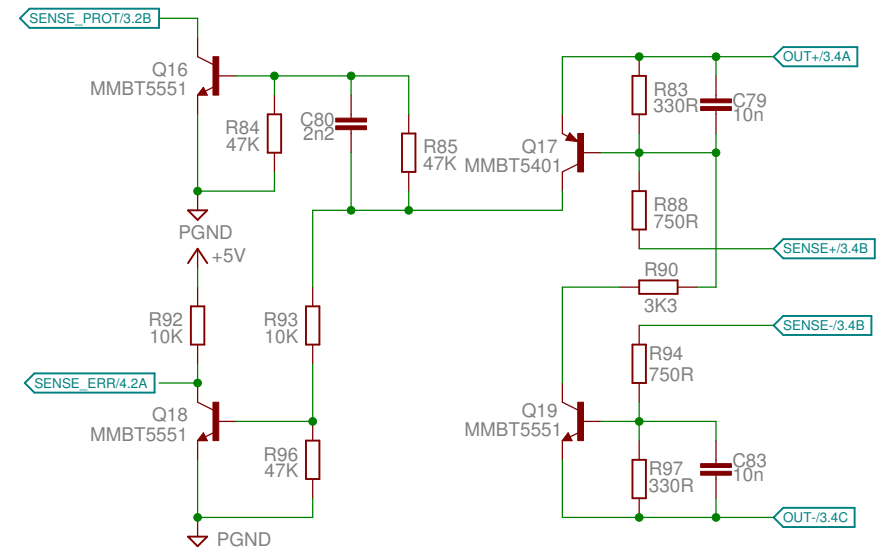
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Constant Voltage (CV) and Constant Current (CC) mode indicator



Remote sense reverse polarity detection



CC/CV indicators, Sense error detection

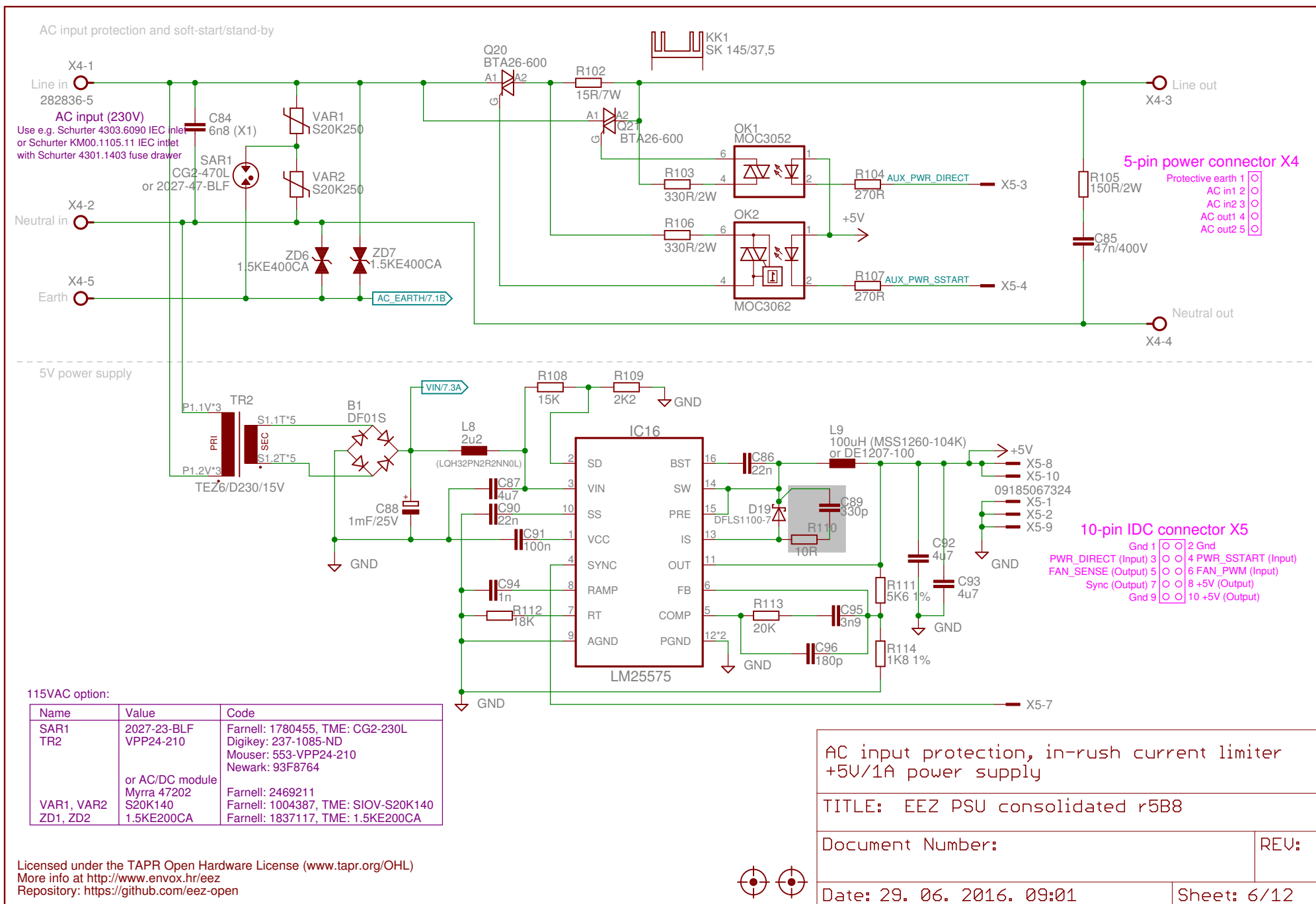
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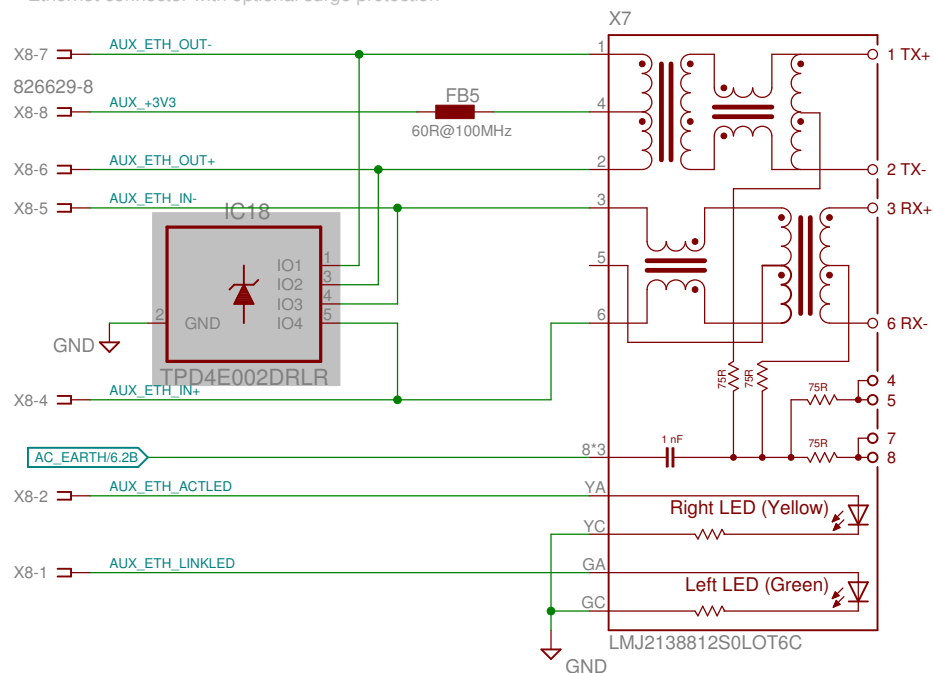
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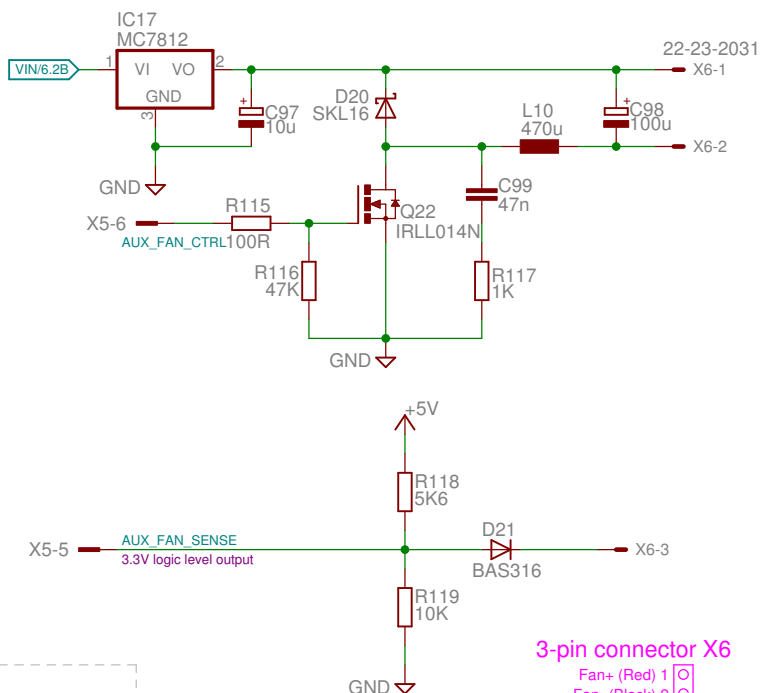
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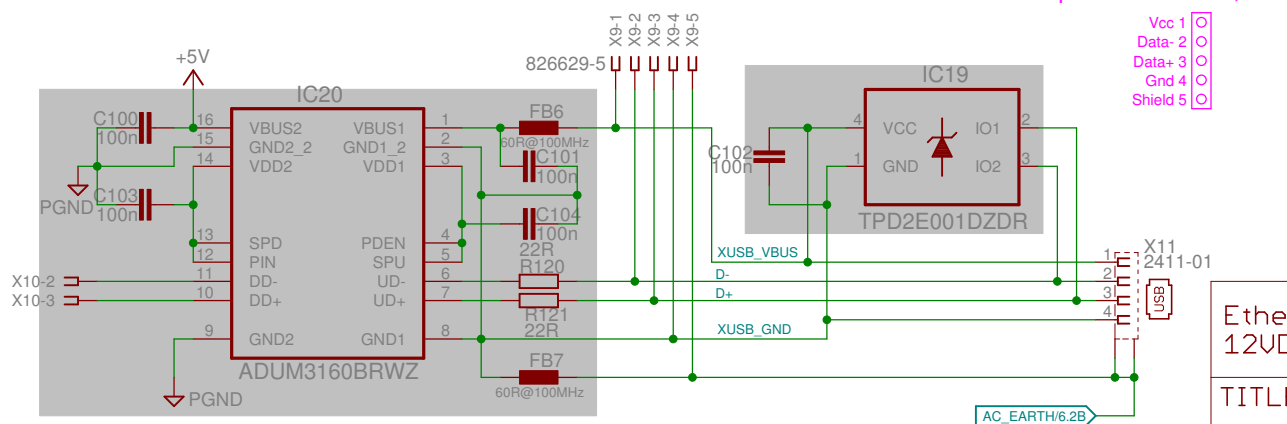
# Ethernet connector with optional surge protection



# 12VDC fan control



# USB connector with optional isolator and surge protection



Note 7.1: Mount X4 and X8 on the opposite (top) side of the PCB. Use 14 mm (e.g. Bossard B3X14/BN3320) for enclosure with 3 mm rear panel

Ethernet and USB PCB connectors  
12VDC fan driver (max. 300 mA)

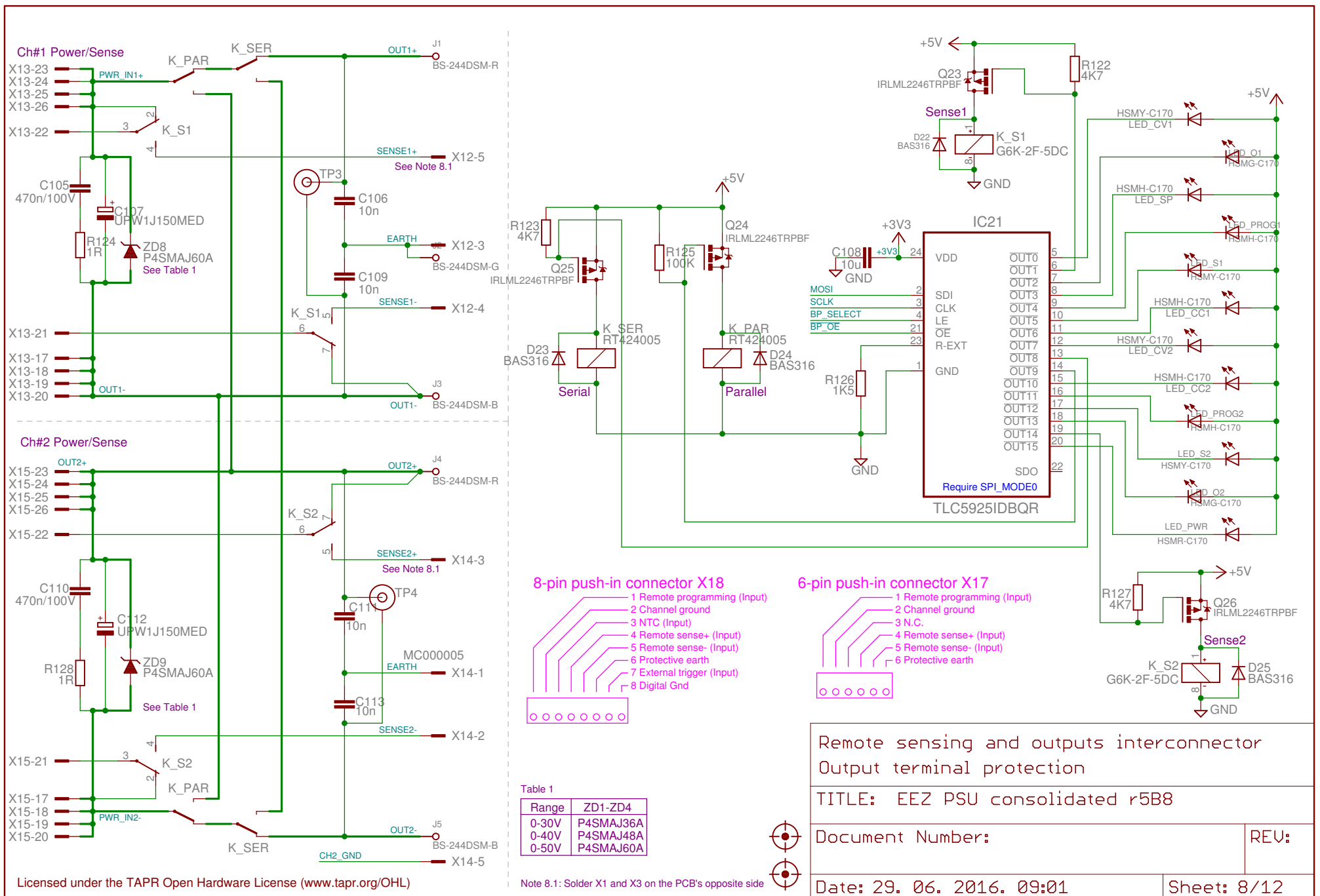
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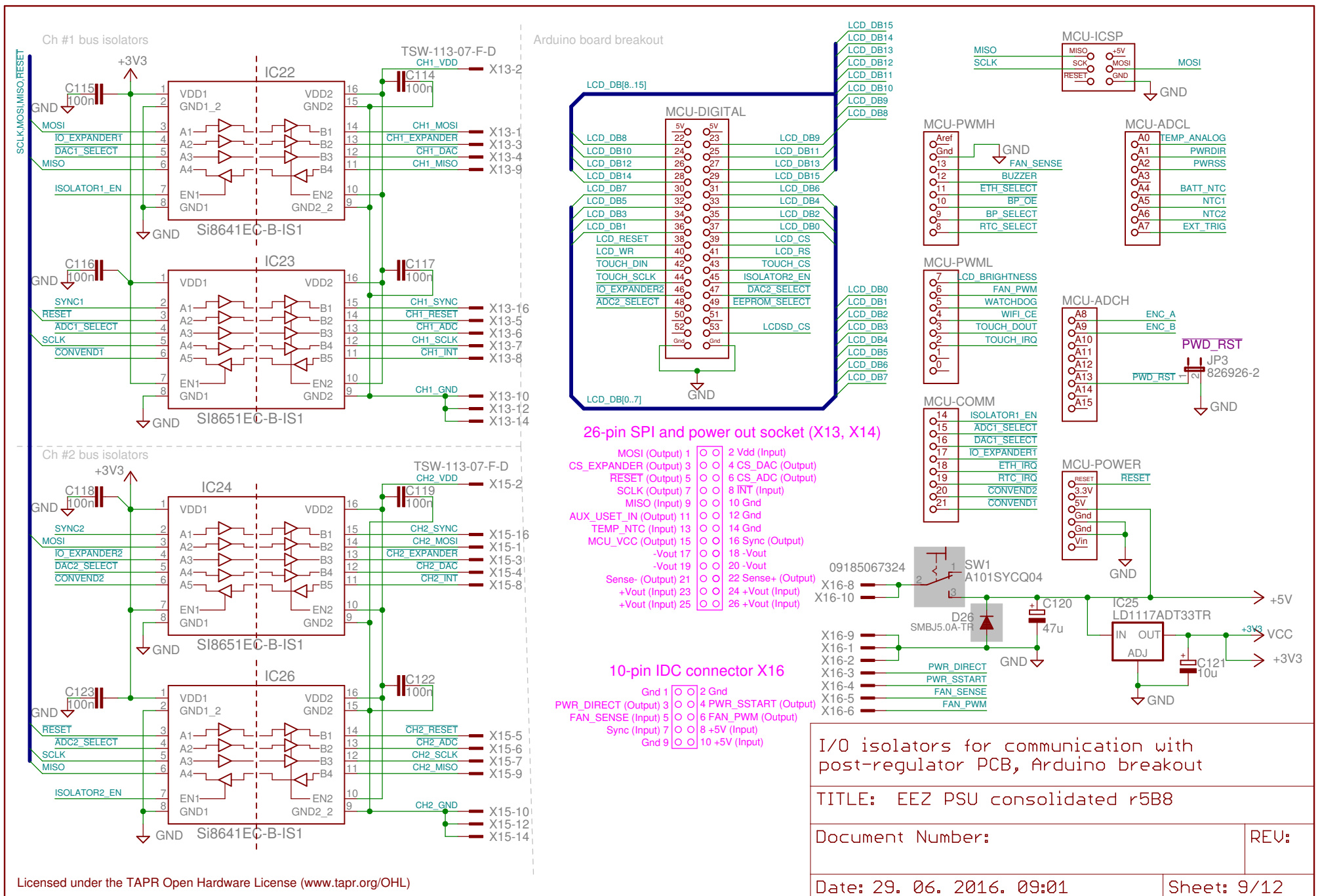
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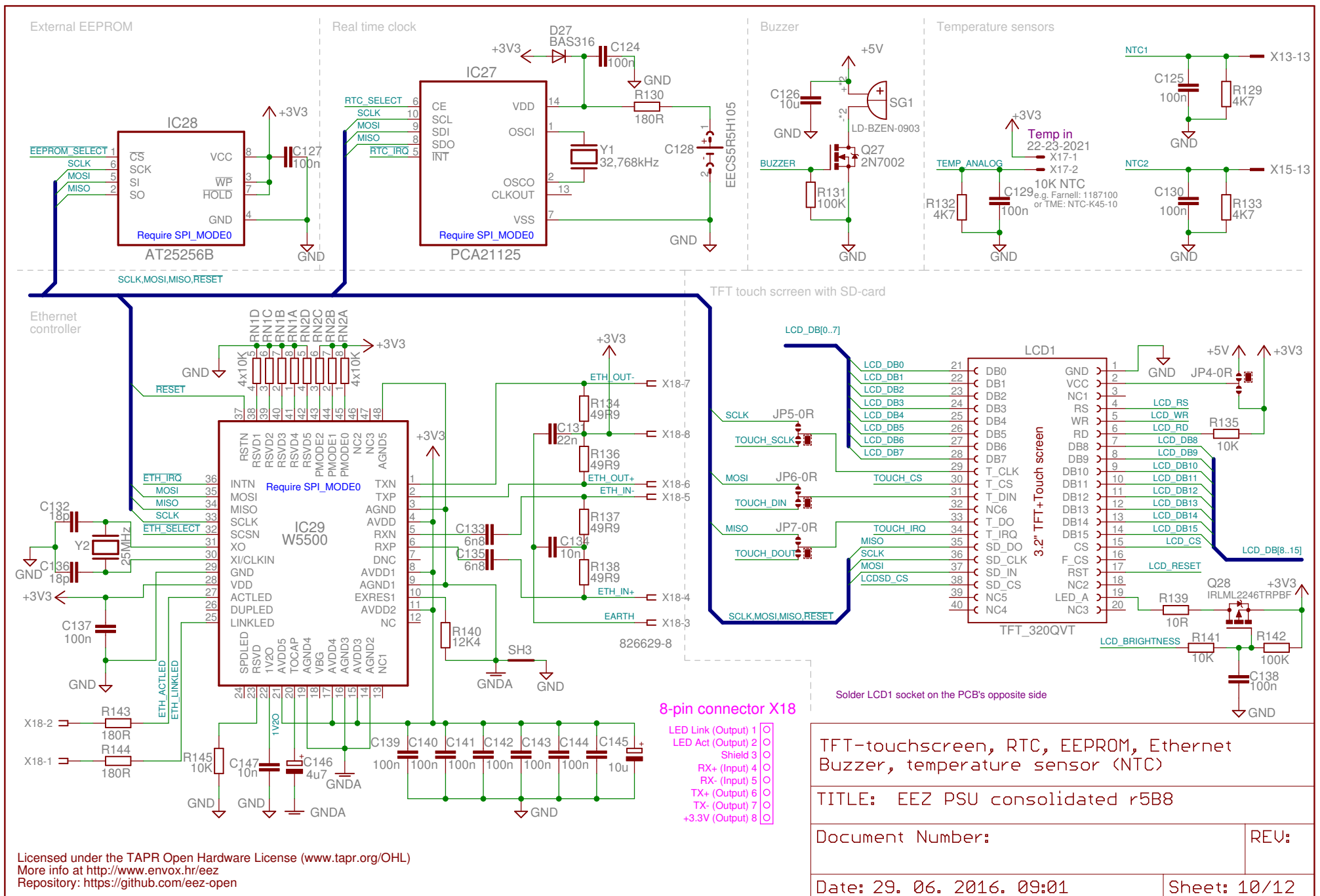
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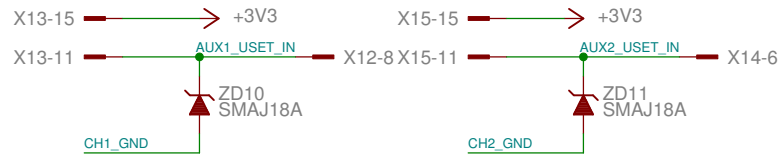




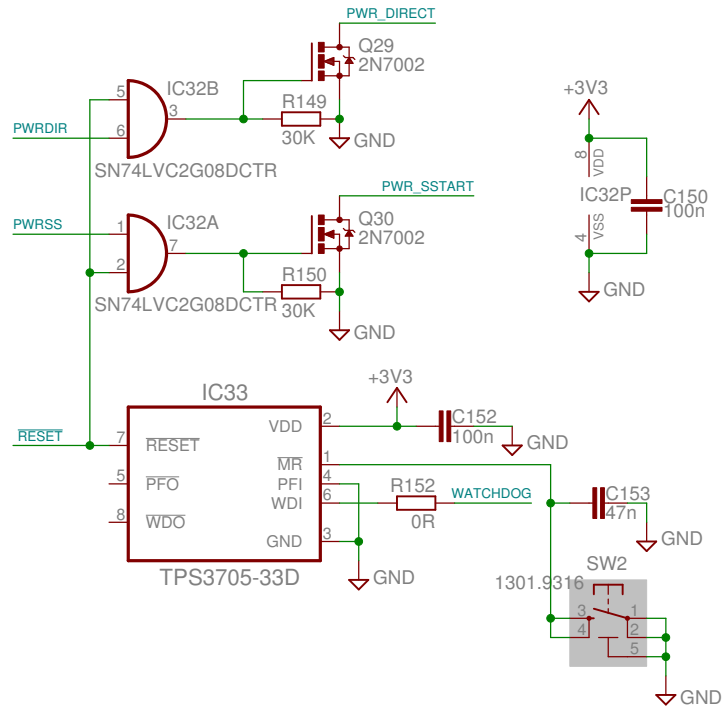




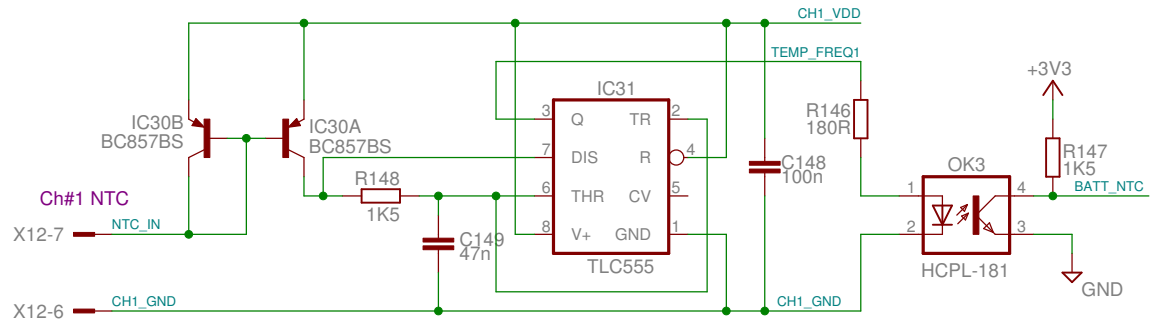
### Remote programming inputs



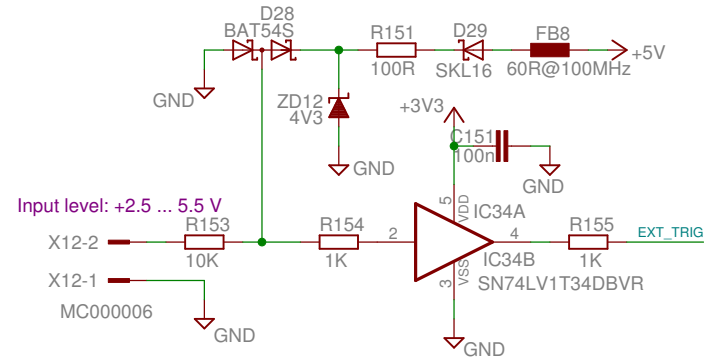
### Power-on reset generator and power control



### Channel 1 V/F converter for battery NTC (optional)



### External trigger protection and level shifter/buffer



LED CC/CV indicators, Reset control,  
Optional Ethernet module connector, External trigger,  
V/F converter for battery NTC (optional), Encoder (optional)

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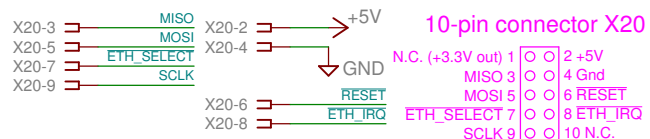
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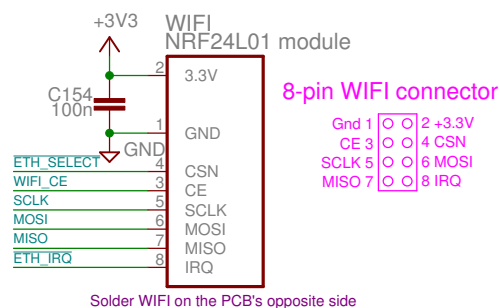
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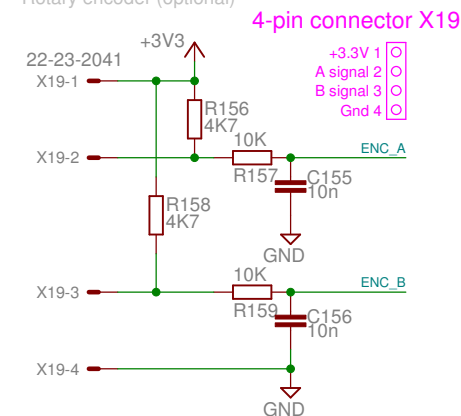
### Optional Ethernet module connector



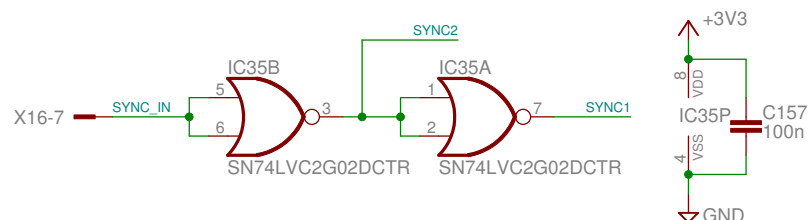
### Optional Wifi module connector



### Rotary encoder (optional)



### Master sync signal phase shifting



Optional ethernet, Wifi and encoder  
Power boards SMPS sync

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