Servo motor stepper project (M3)

Stepper motor controller with overtemperature, overvoltage and overcurrent protection

Status reading guide:

Draft: Early stage, ignore details.
Preliminary: Almost finished, could have some errors.
Checked: There shouldn't be any error, inform if that isn't the case.
Released: The schematic belongs to a board sent to production.

Status: Released

Release date: 09/12/23 (DD/MM/YY)

Variation: No variations

Comments reading guide:

Compatibility

Design

Layout

user information

Number of layers: 2

Micro/blind/buried vias: No

Related files: BOM, gerber files and pick and place data

Number of sheets: 1

Mark not fitted components as: 

Note: V3P3 *This is a global scope label.*

Reset *This is a local (sheet) scope label.*

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Servo motor stepper (M3)
V4 – 2023-12-09 (DD/MM/YY)

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File: M3-V4.kicad_sch

Title: Servo motor stepper – M3 project

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Power block Diagram

Schematic top level

Signal block Diagram

Mechanical

Servo motor stepper – Index

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Title: Servo motor stepper M3 – Index

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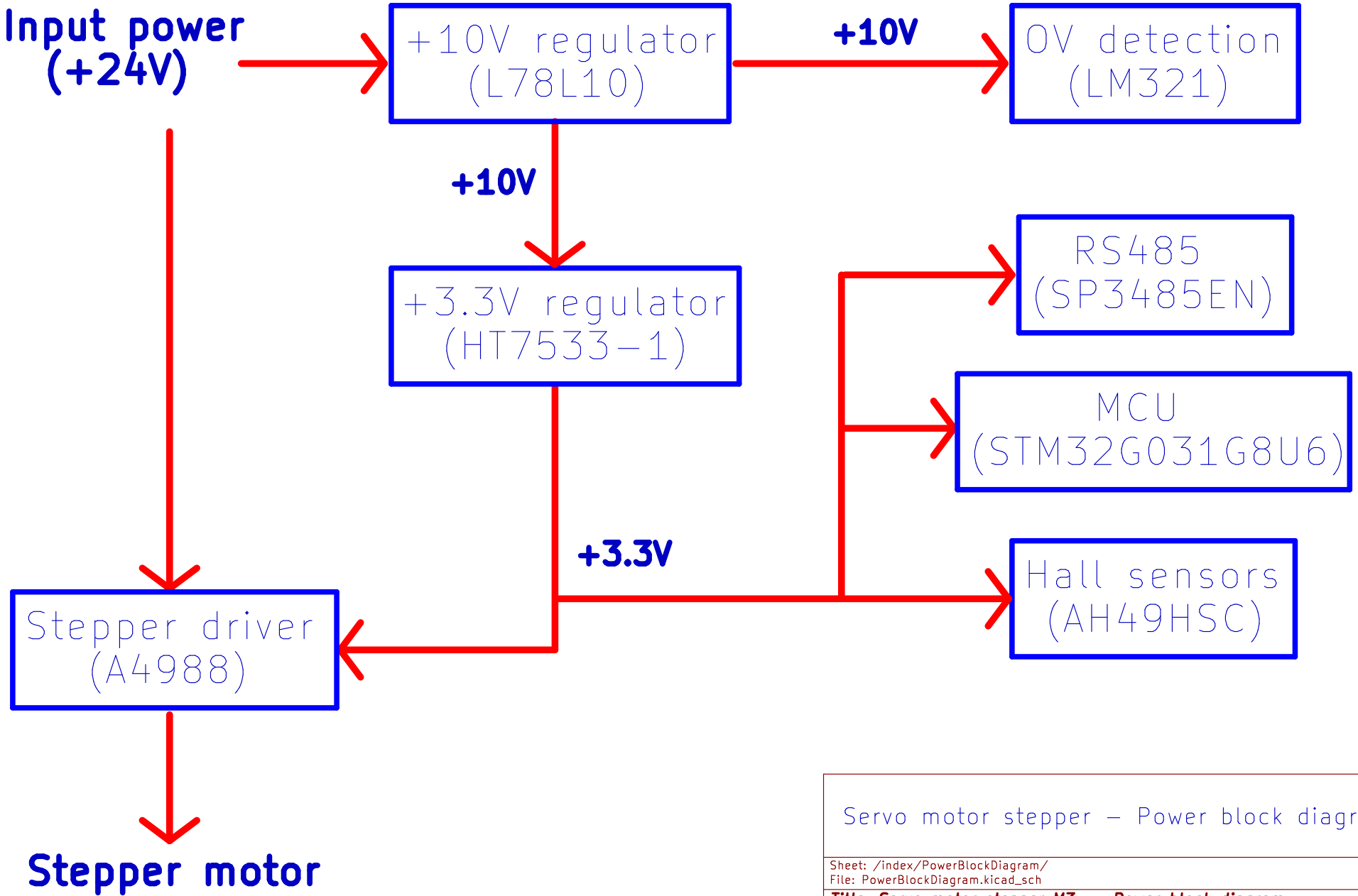

Servo motor stepper – Power block diagram

Sheet: /index/PowerBlockDiagram/
File: PowerBlockDiagram.kicad_sch

Title: Servo motor stepper M3 – Power block diagram

Size: A4	Date: 2023-09-10	**Rev: V3**
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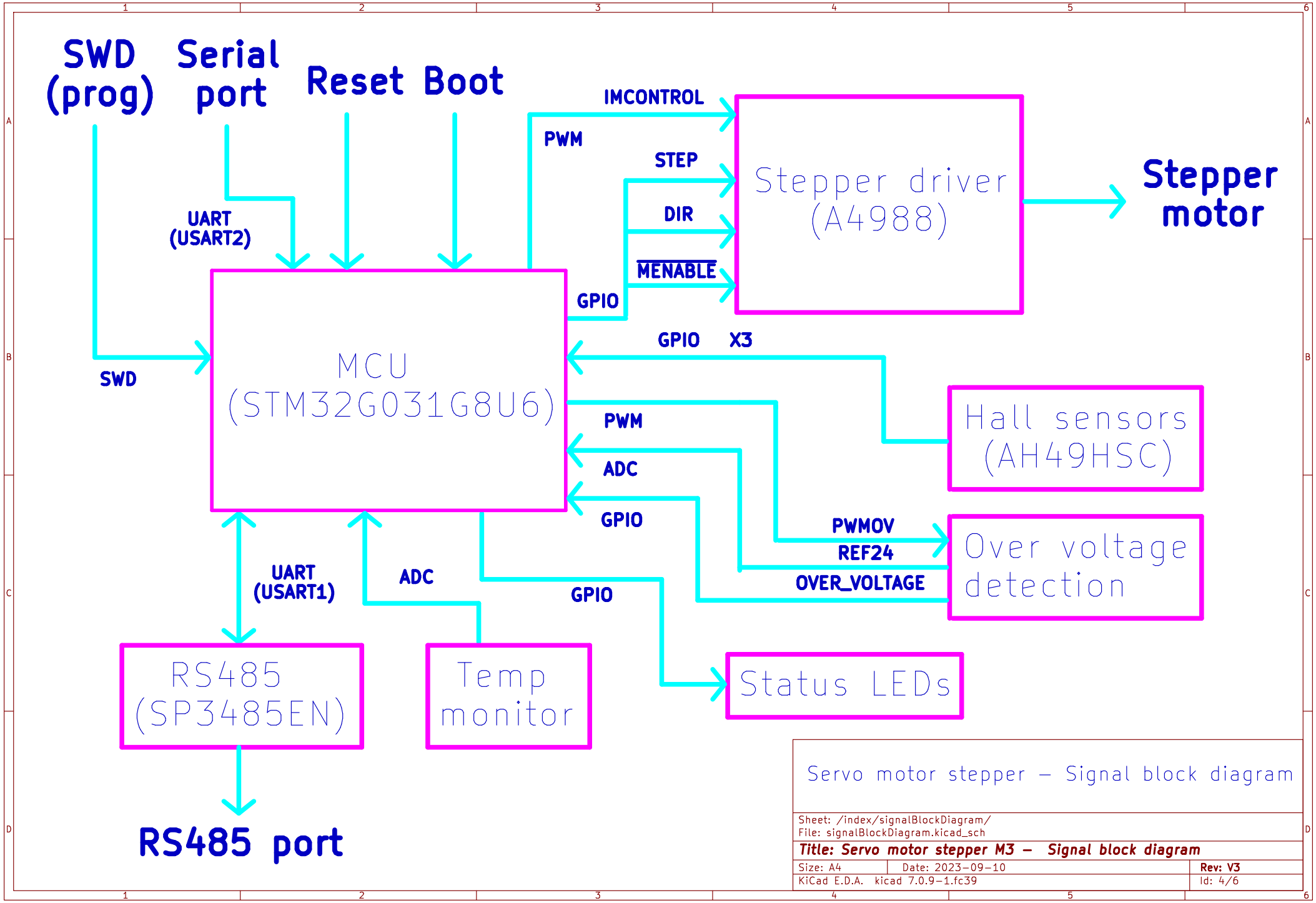
SWD (prog)
Serial port
Reset Boot
IMCONTROL
PWM
STEP
DIR
MENABLE
Stepper driver (A4988)
Stepper motor
UART (USART2)
GPIO
GPIO X3
SWD
MCU (STM32G031G8U6)
Hall sensors (AH49HSC)
PWM
ADC
GPIO
PWMOV
REF24
OVER_VOLTAGE
Over voltage detection
UART (USART1)
ADC
GPIO
RS485 (SP3485EN)
Temp monitor
Status LEDs
RS485 port
Servo motor stepper – Signal block diagram
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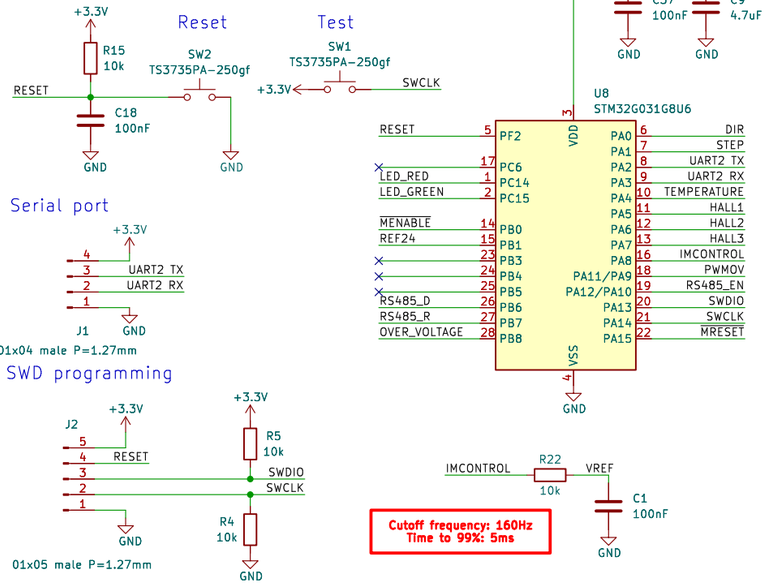
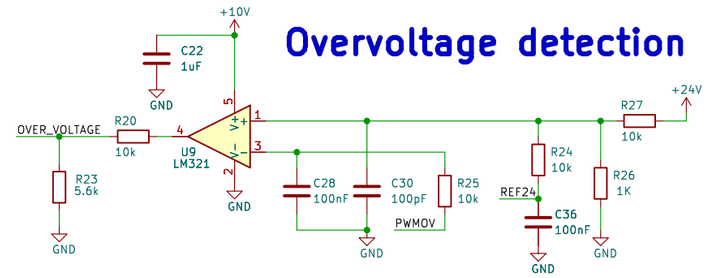
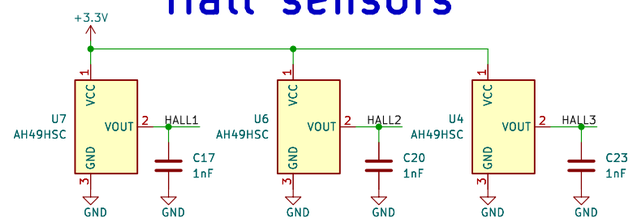
STM32G031G8 MCU



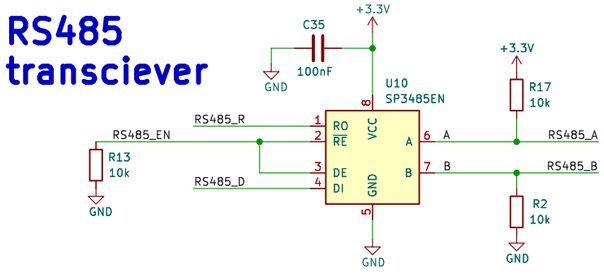
Overvoltage detection



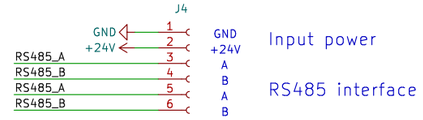
Hall sensors



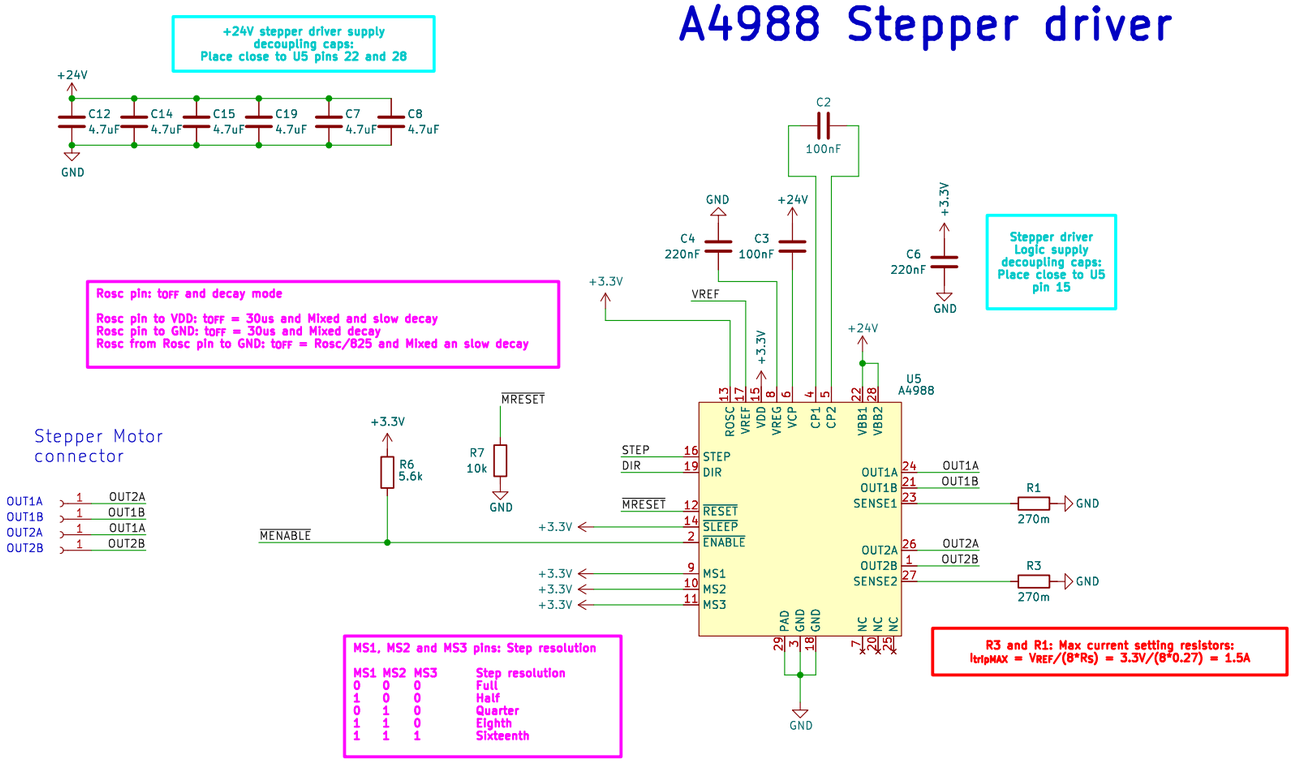
RS485 transciever



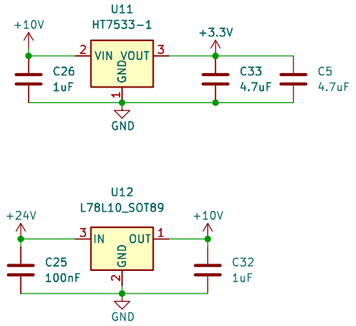
Input power and RS485 connector



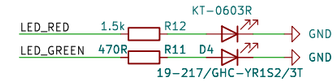
A4988 Stepper driver



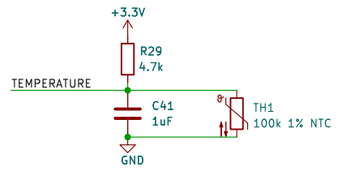
Input power and linear regulators



Status LEDs



Temperature monitoring



Servo motor stepper – Schematic top level

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Title: Servo motor stepper M3 – Schematic top level

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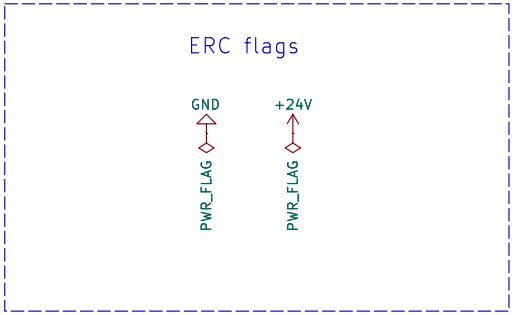

Servo motor stepper – Mechanical and ERC

Sheet: /index/mechanicalAndERC/
File: mechanicalAndERC.kicad_sch

Title: Servo motor stepper M3 – Mechanical and ERC

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