

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: 24/01/24 (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:  This is a global scope label.
 This is a local (sheet) scope label.

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Servo motor stepper (M3)
V5 - 2024-01-24 (DD/MM/YY)

Sheet: /

File: M3-V5.kicad_sch

Title: Servo motor stepper - M3 project

Size: A4 Date: 2024-01-24

KiCad E.D.A. kicad 7.0.10-1.fc39

Rev: V5

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Power block Diagram

Schematic top level

Signal block Diagram

Mechanical

Servo motor stepper – Index

Sheet: /index/
File: index.kicad_sch

Title: Servo motor stepper M3 – Index

Size: A4 Date: 2024-01-24

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Input power
(+24V)

+10V regulator
(L78L10)

+10V

OV detection
(LM321)

+10V

+3.3V regulator
(HT7533-1)

RS485
(SP3485EN)

MCU
(STM32G031G8U6)

+3.3V

Stepper driver
(A4988)

Hall sensors
(AH49HSC)

Stepper motor

Servo motor stepper – Power block diagram

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

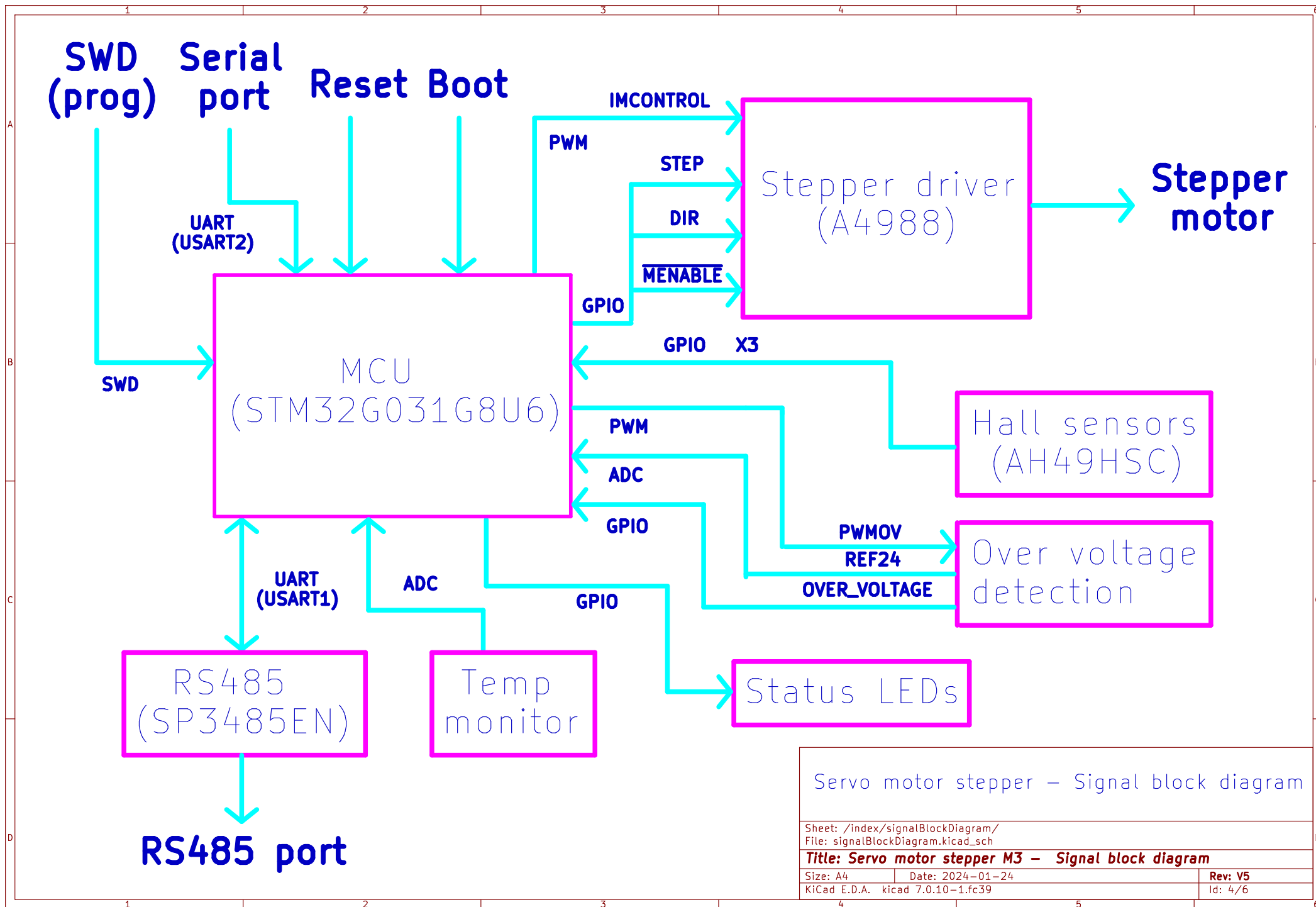
Title: Servo motor stepper M3 – Power block diagram

Size: A4 Date: 2024-01-24

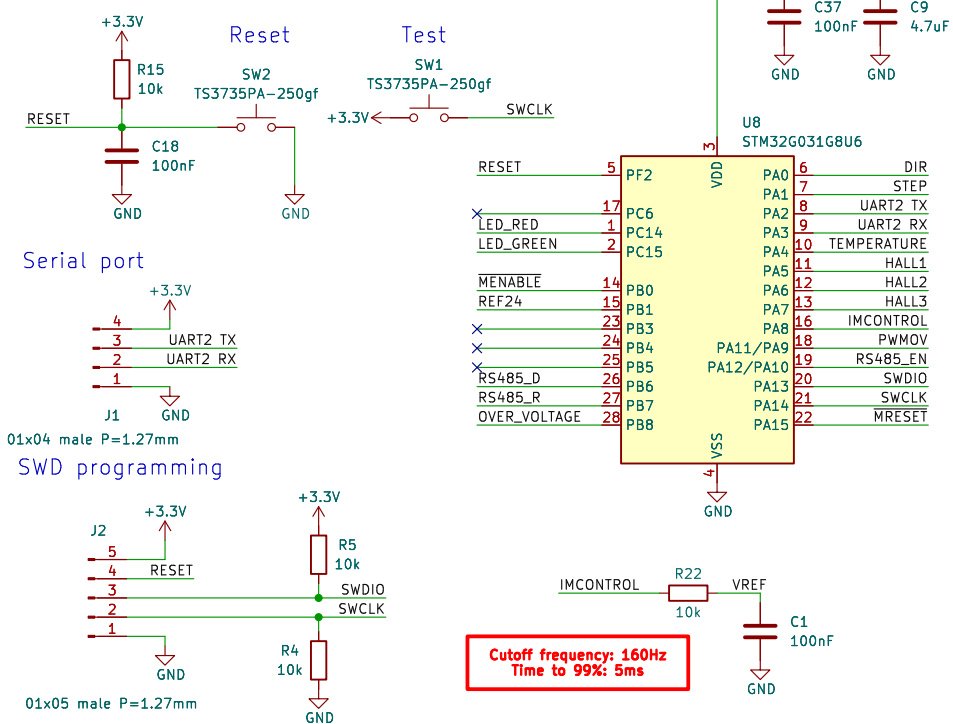
Rev: V5

KiCad E.D.A. kicad 7.0.10-1.fc39

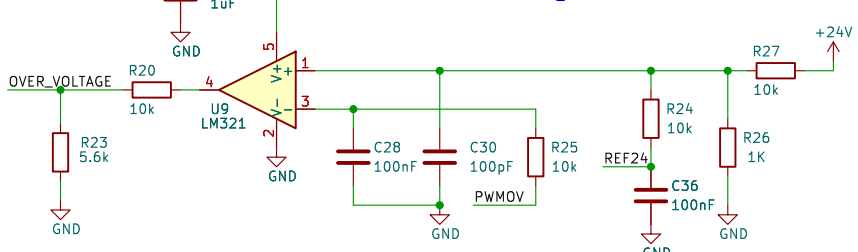
Id: 3/6



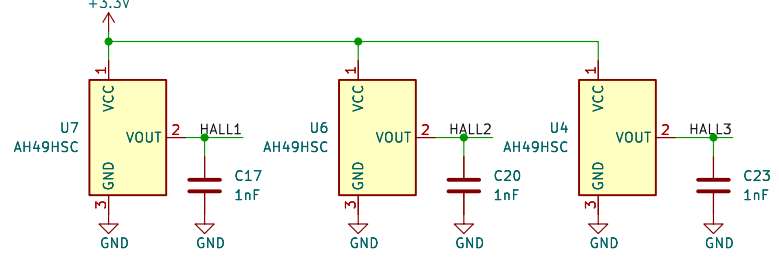
STM32G031G8 MCU



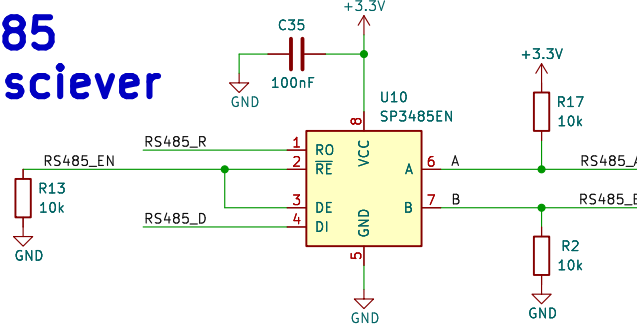
Overvoltage detection



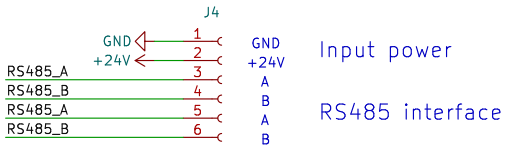
Hall sensors



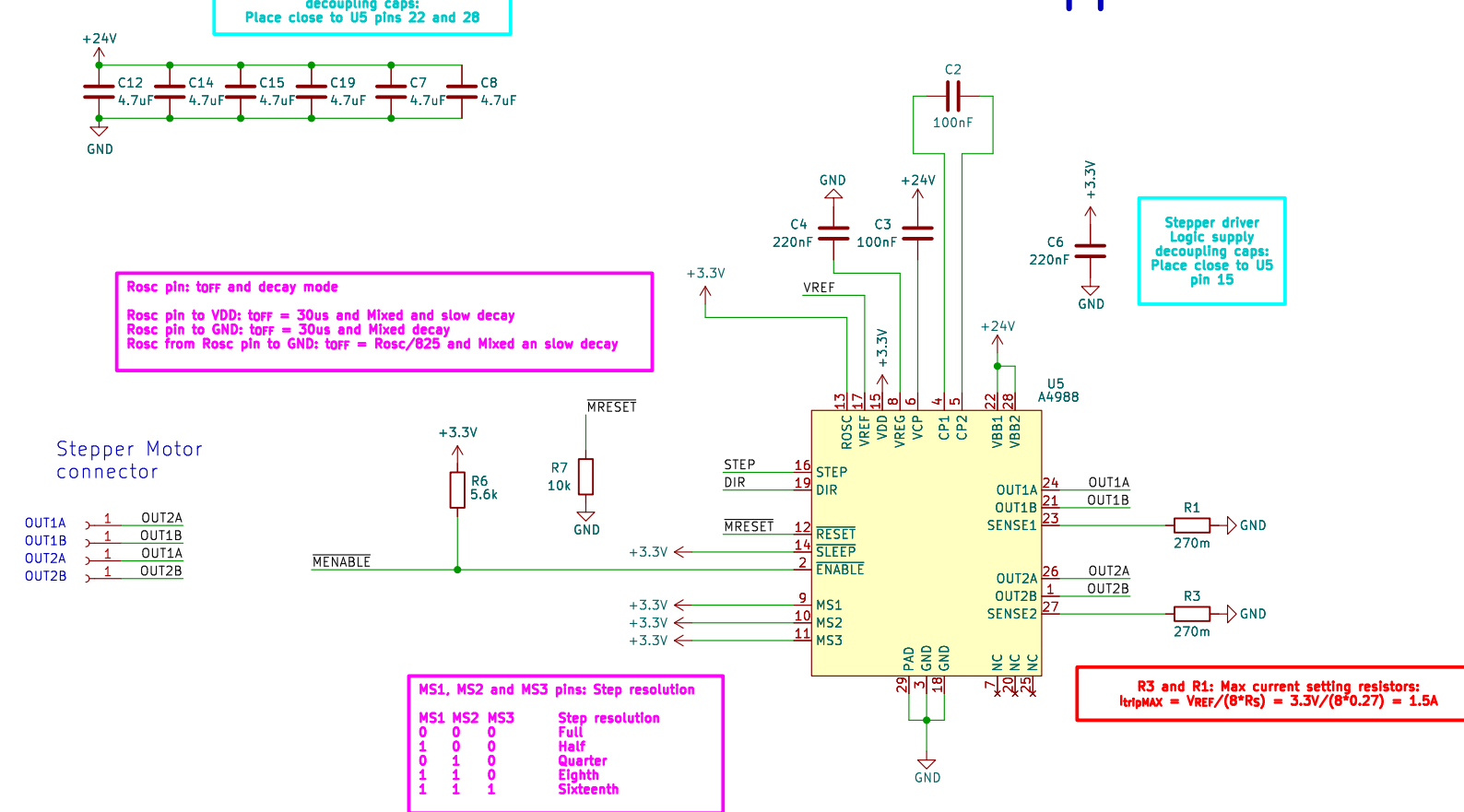
RS485 transceiver



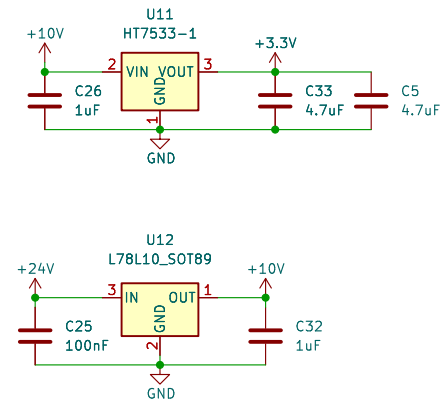
Input power and RS485 connector



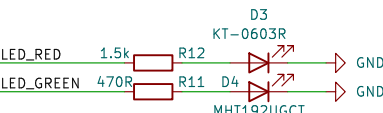
A4988 Stepper driver



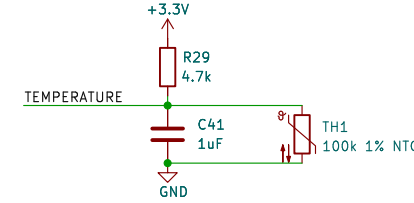
Input power and linear regulators



Status LEDs



Temperature monitoring



Servo motor stepper – Schematic top level

