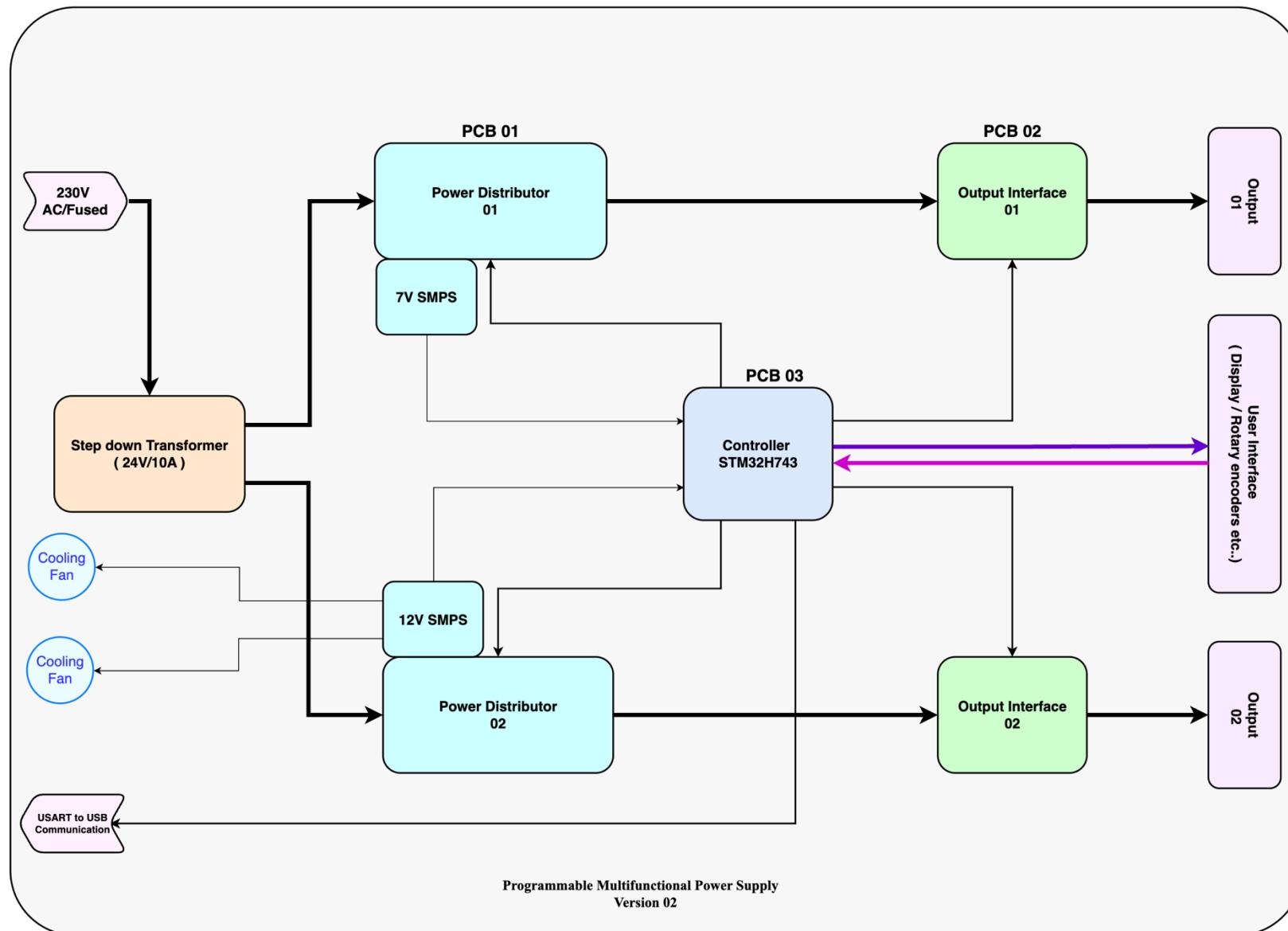


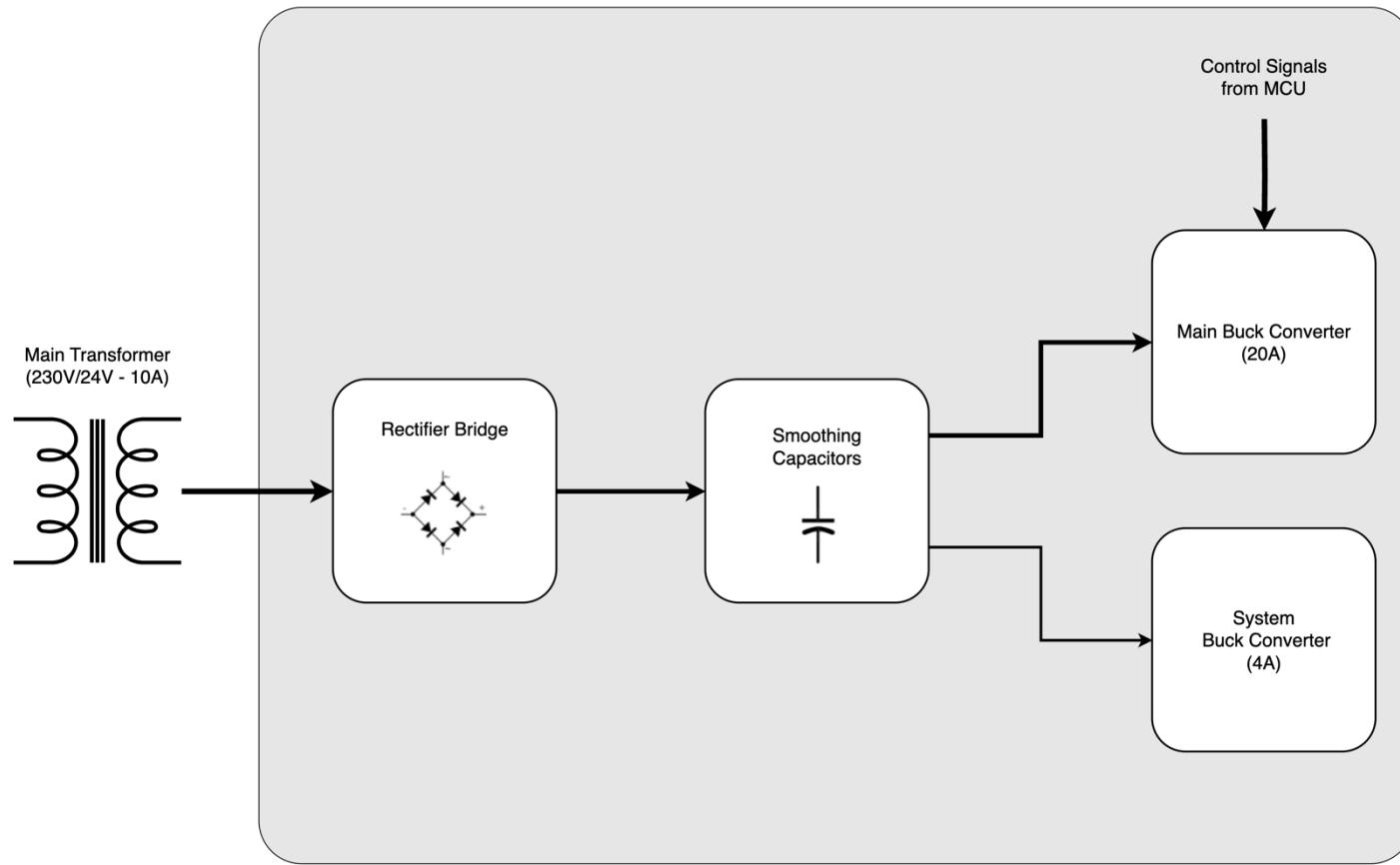
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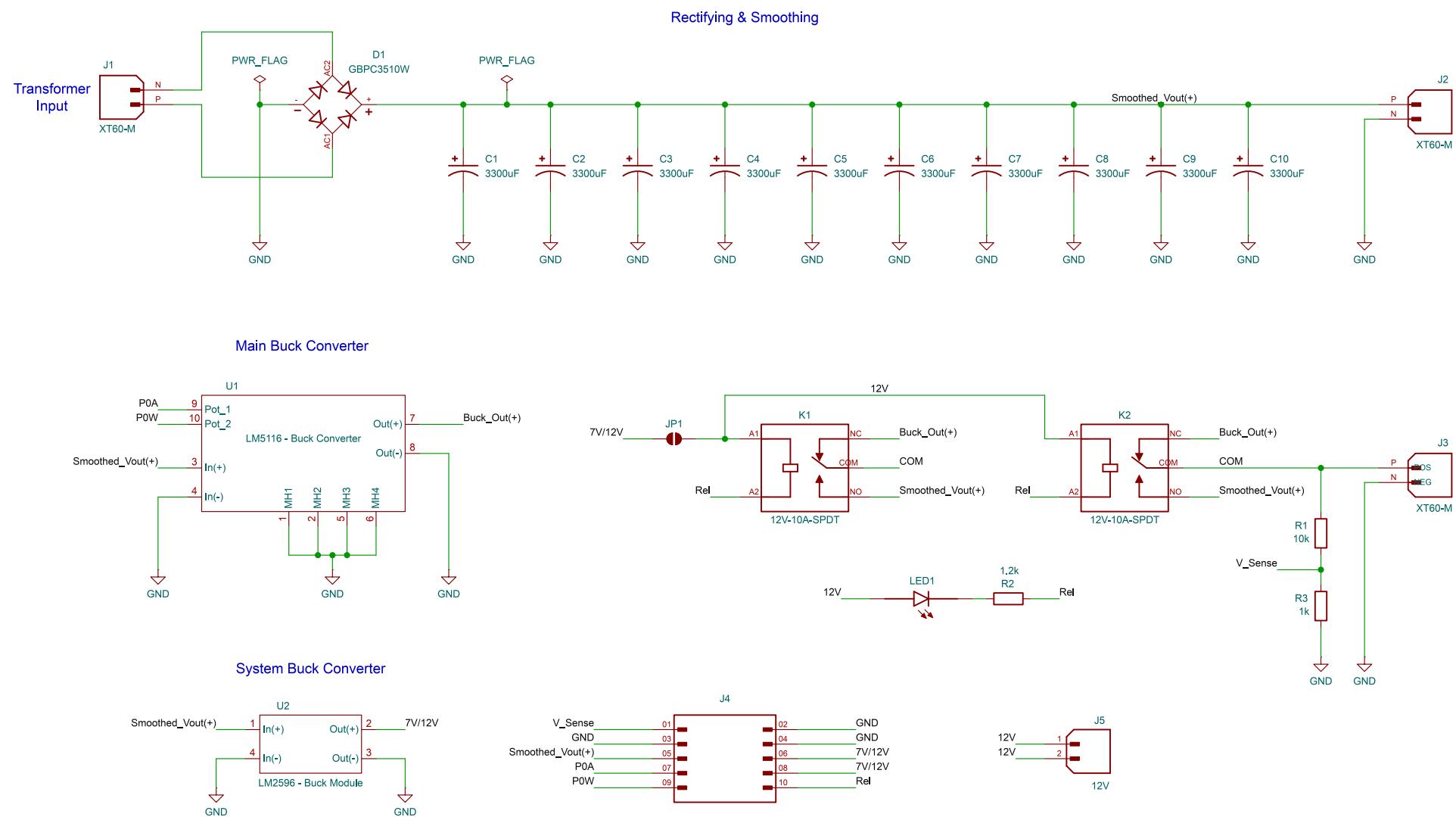
<b>PCB</b>	<b>Topic</b>	<b>Page</b>
	Top View of Full Product - Block diagram	2
PCB 01	Power Distributor - Block diagram & Schematic	3 - 4
PCB 02	Output Interface - Block diagram & Schematic	5 - 11
PCB 03	Controller Unit - Block diagram & Schematic	12 - 19

- Top View of Full Product



- Power Distributor – Block Diagram & Schematic





**Title: Power Distributor**

Sheet: /  
File: Power Distributor - V01.kicad\_sch

Drawn by: Nimesh Kavinda

Size: A4 Date: 2025-01-29

KiCad E.D.A. 8.0.7



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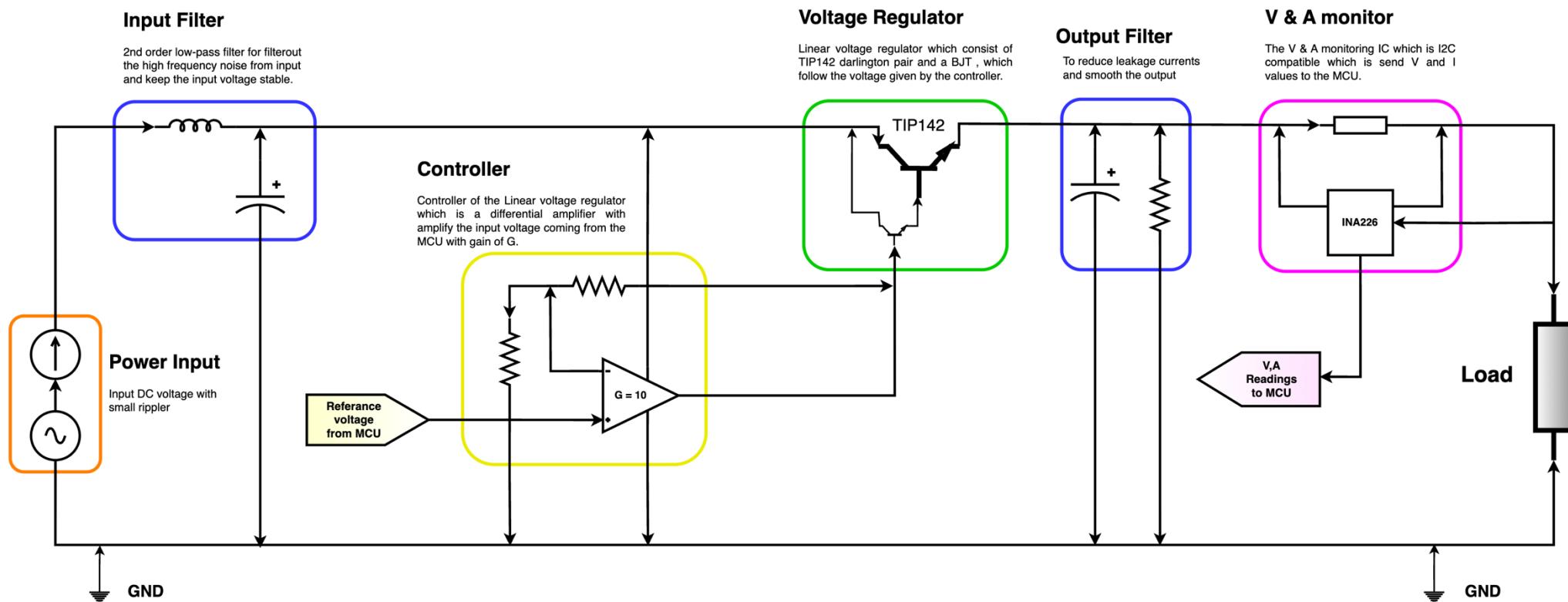
Rev: V01

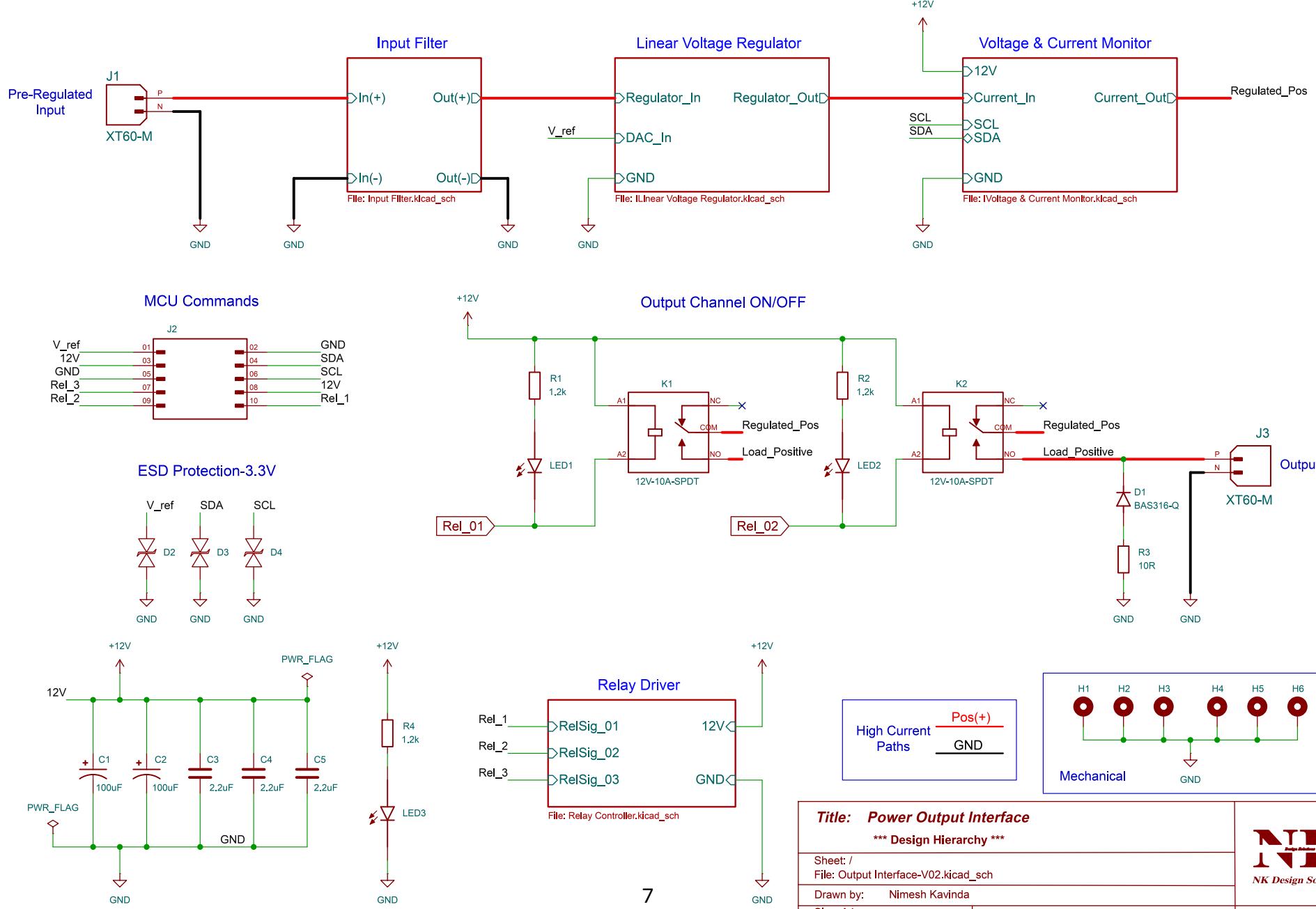
Page: 1 of 1

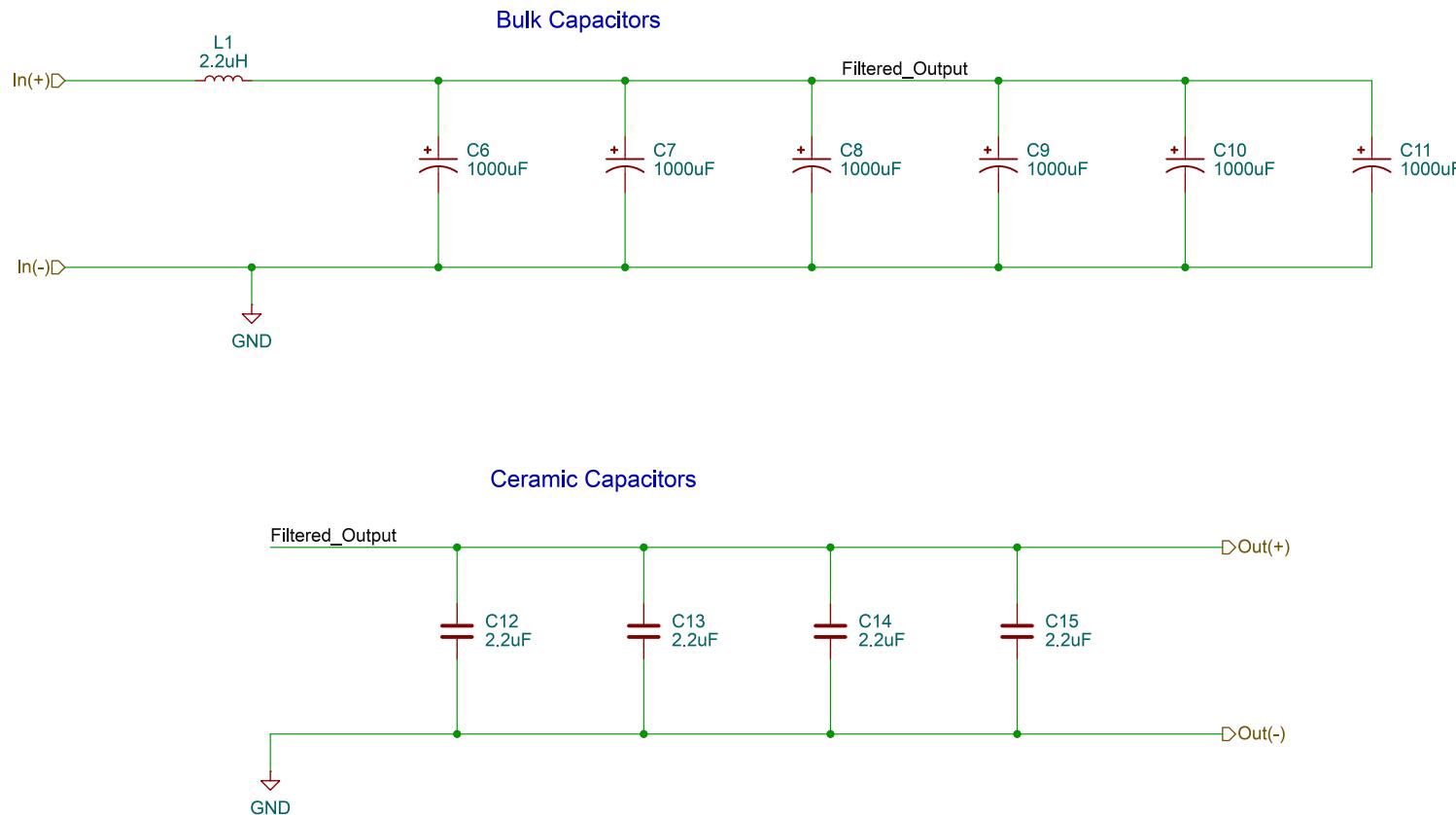
- Power Output Interface – Block Diagram & Schematic

Schematic	Content	Page
Block Diagram	Main blocks with brief description.	6
Design Hierarchy	Hierarchical approach, main I/O connectors.	7
Input Filter	Second Order Low-pass Filter	8
Voltage Regulation	Linear Voltage Regulator with controller	9
V/A Monitoring	Voltage & Current Monitoring using INA226	10
Relay Driver	Relay Driver using ULN2003A IC	11

- Power Output Interface – Block Diagram







8

**Title: Power Output Interface****\*\*\* Second Order Low-pass Filter \*\*\***

Sheet: /Input Filter/  
File: Input Filter.kicad\_sch

Drawn by: Nimesh Kavinda

Size: A4 Date: 2025-01-04

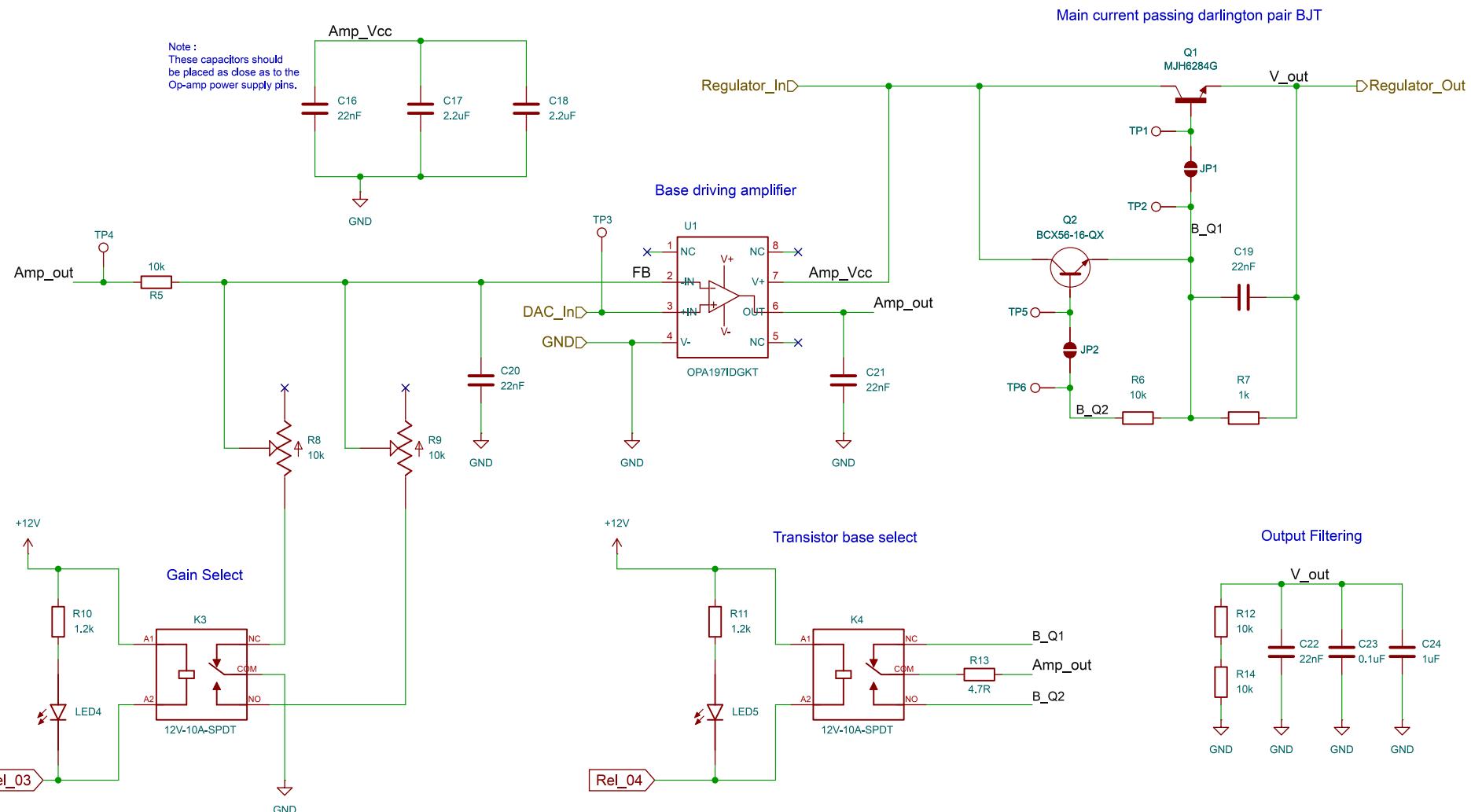
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Rev: V02

Page: 2 of 5



**Title: Power Output Interface**

\*\*\* Linear Voltage Regulator \*\*\*

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File: ILinear Voltage Regulator.kicad\_sch

Drawn by: Nimesh Kavinda

Size: A4 Date: 2025-01-04

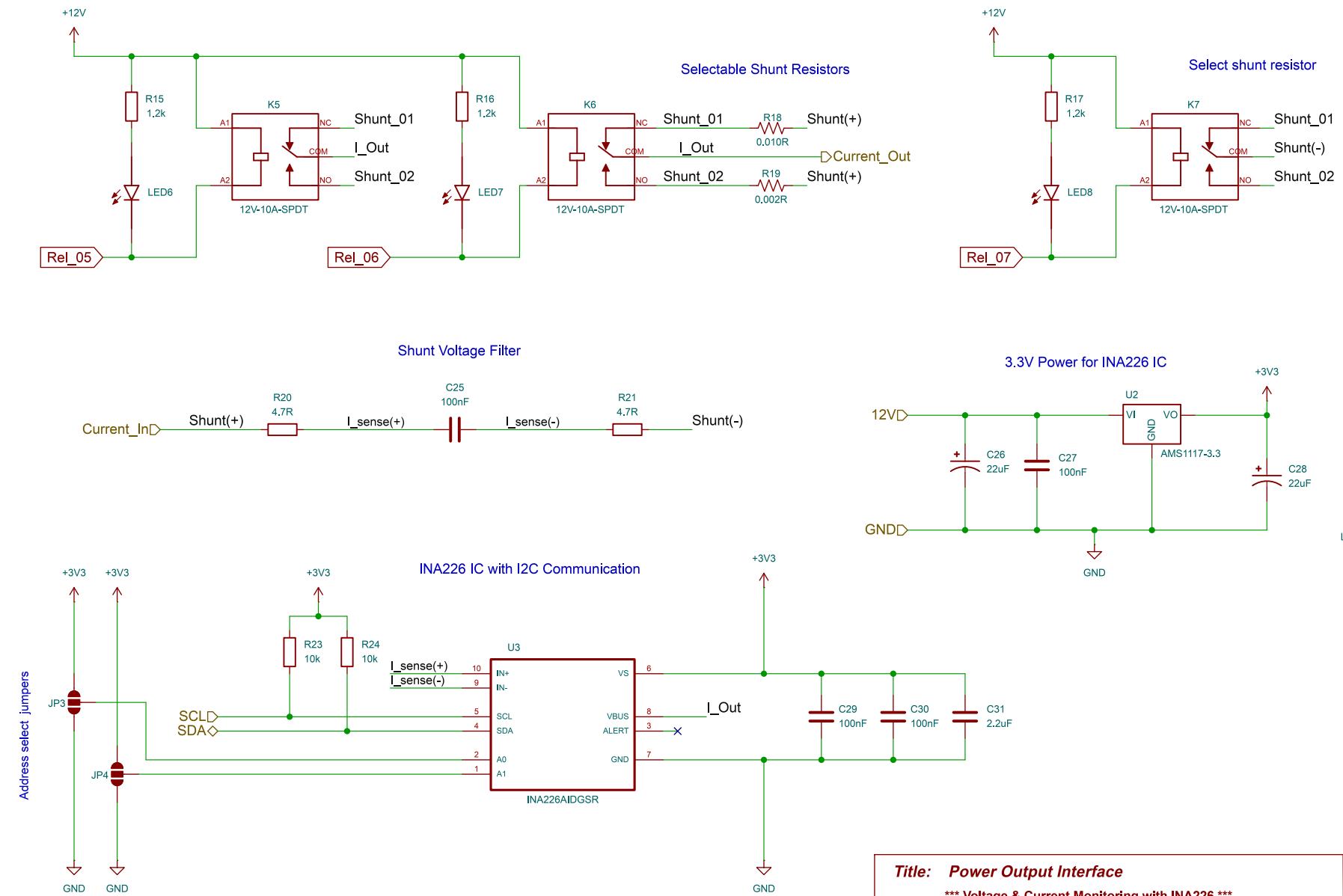
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Rev: V02

Page: 3 of 5



**Title: Power Output Interface**

\*\*\* Voltage & Current Monitoring with INA226 \*\*\*



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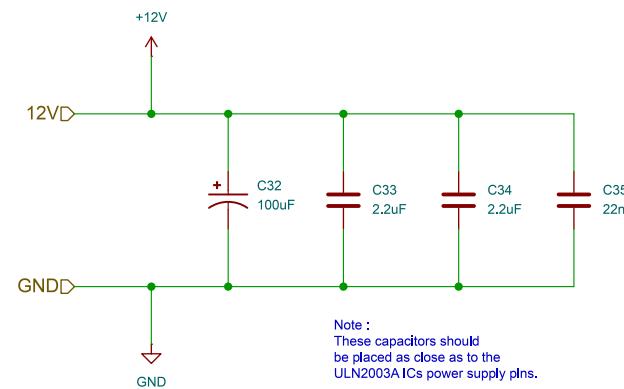
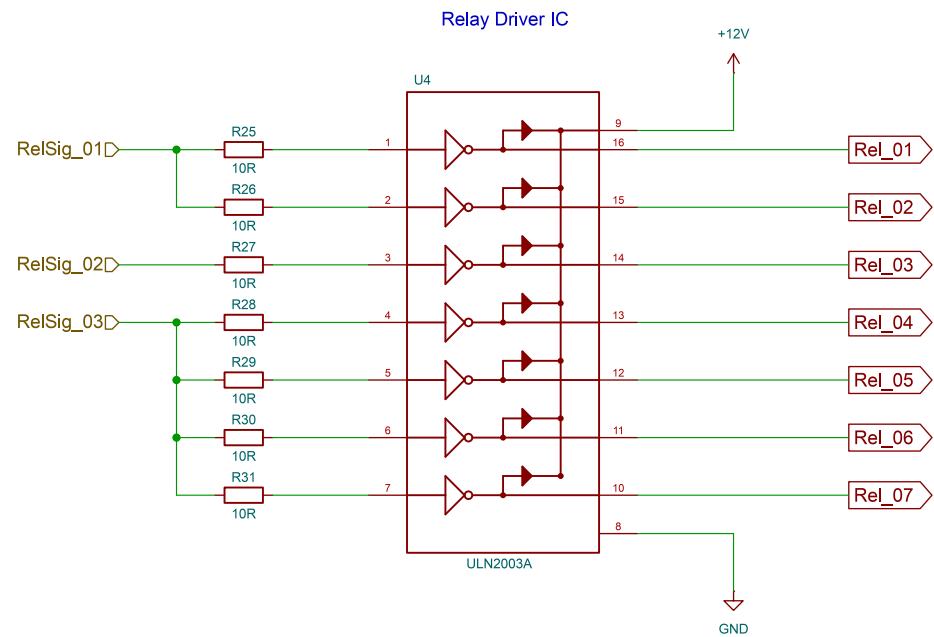
Size: A4

Date: 2025-01-05

Rev: V02

KiCad E.D.A. 8.0.7

Page: 4 of 5



**Title: Power Output Interface**

\*\*\* Relay Driver - ULN2003A IC \*\*\*



Sheet: /Relay Driver/  
File: Relay Controller.kicad\_sch

Drawn by: Nimesh Kavinda

Size: A4

Date: 2025-01-11

Rev: V02

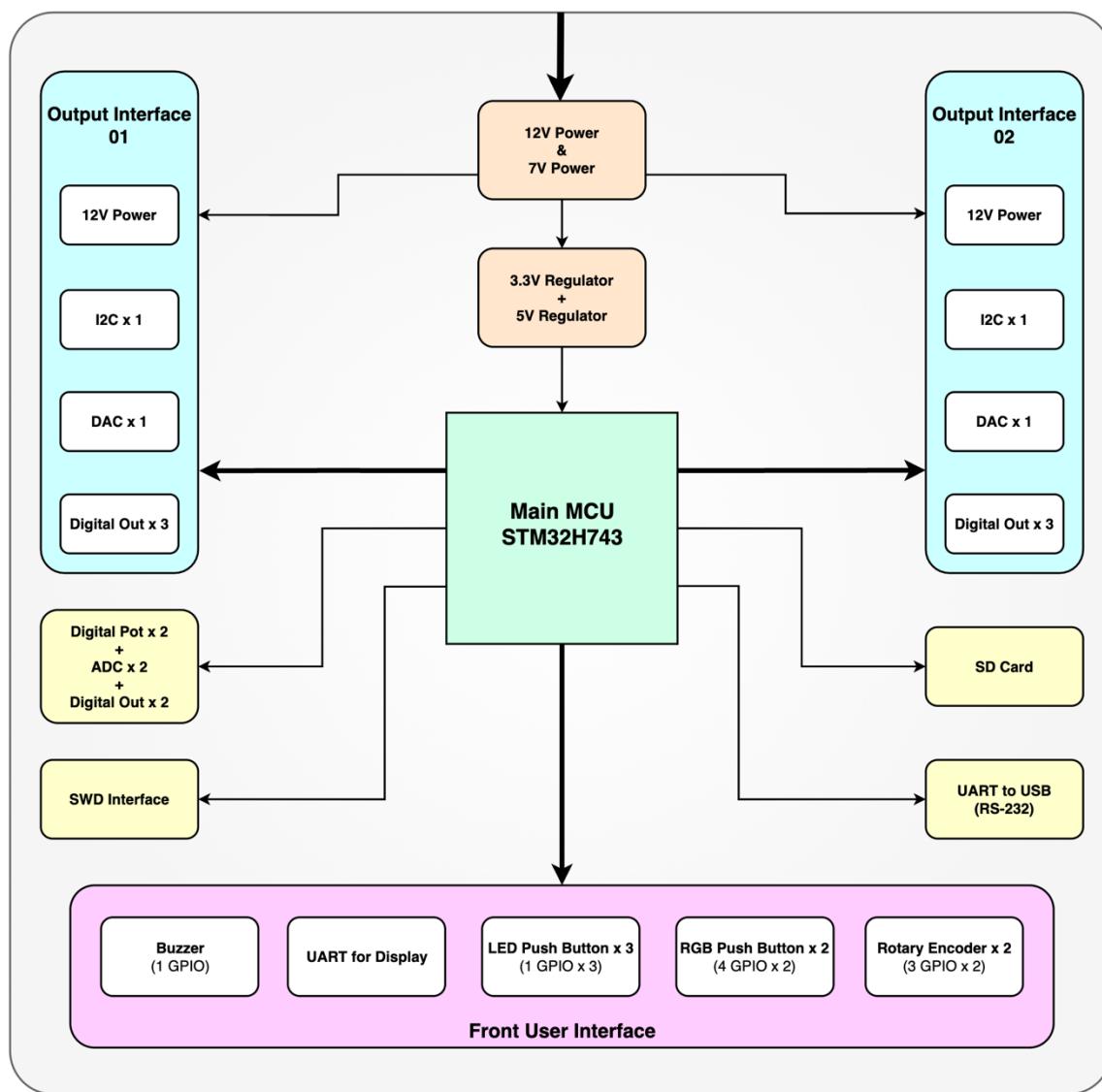
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Page: 5 of 5

- Controller Unit – Block Diagram & Schematic

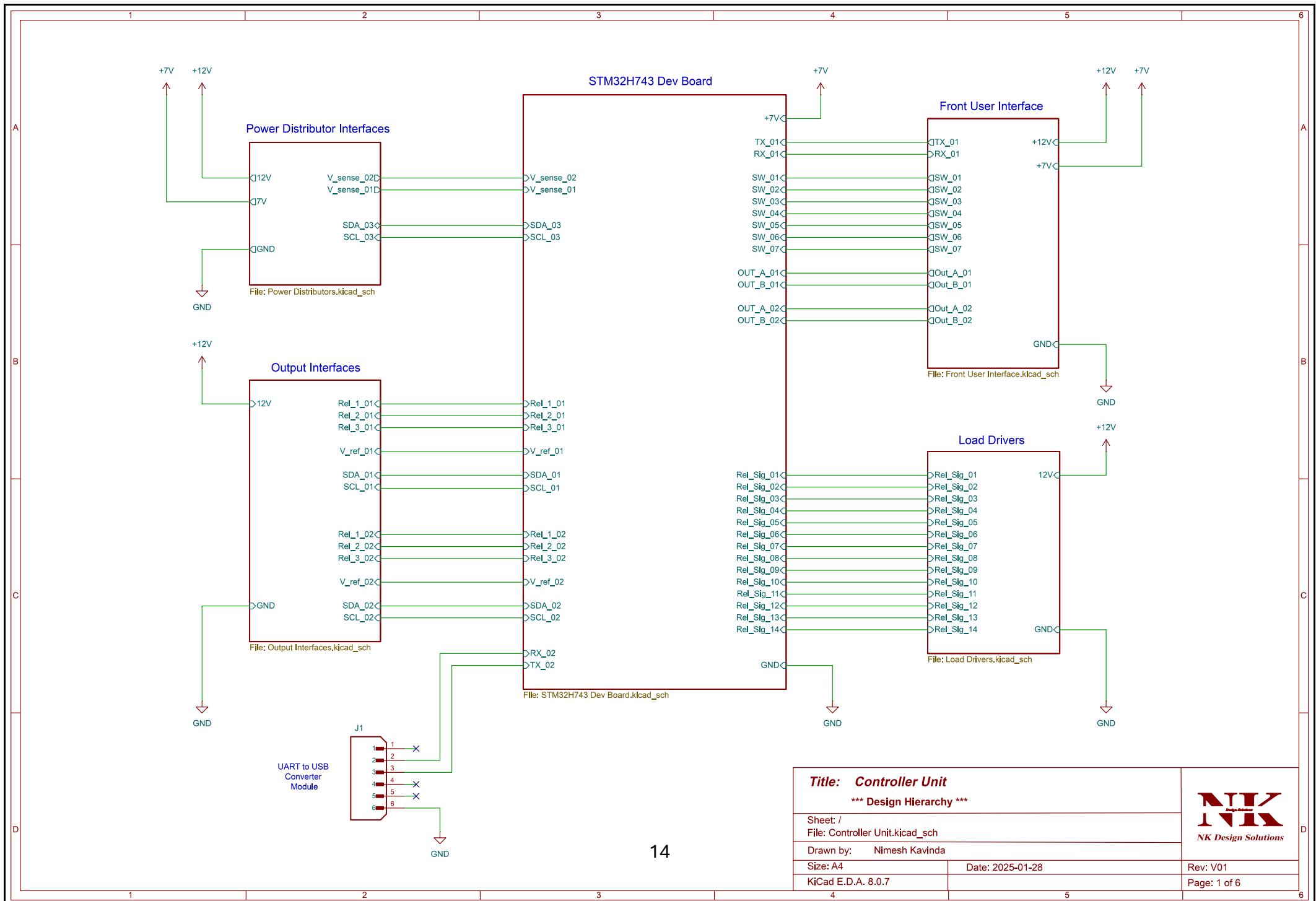
Schematic	Content	Page
Block Diagram	Main blocks with brief description.	13
Design Hierarchy	Hierarchical approach	14
STM32H743 Dev Board	GPIO, Communication and power configuration.	15
Front user interface with display	User interface connectors (buttons, rotary encoders...)	16
Output Interface connectors	Controlling signals to output interface PCB.	17
Power distributor interface	Controlling signals to Power distributor PCB.	18
Load Drivers	Load driver using ULN2003A IC.	19

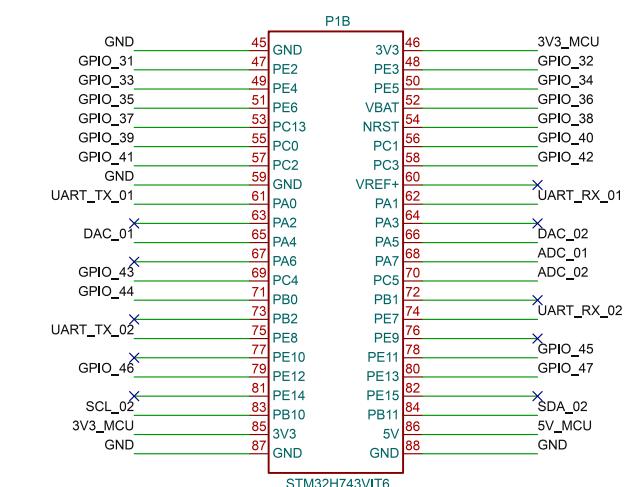
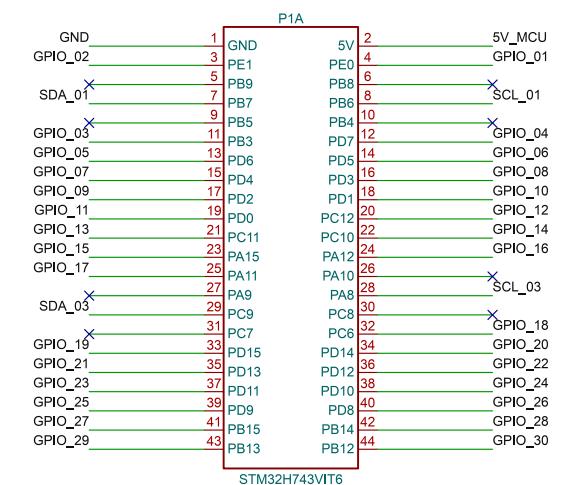
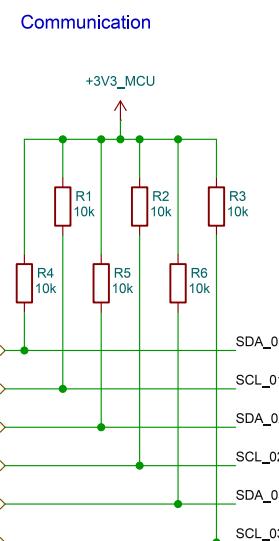
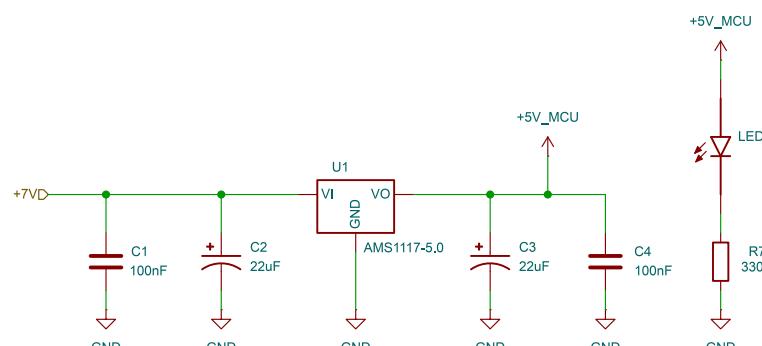
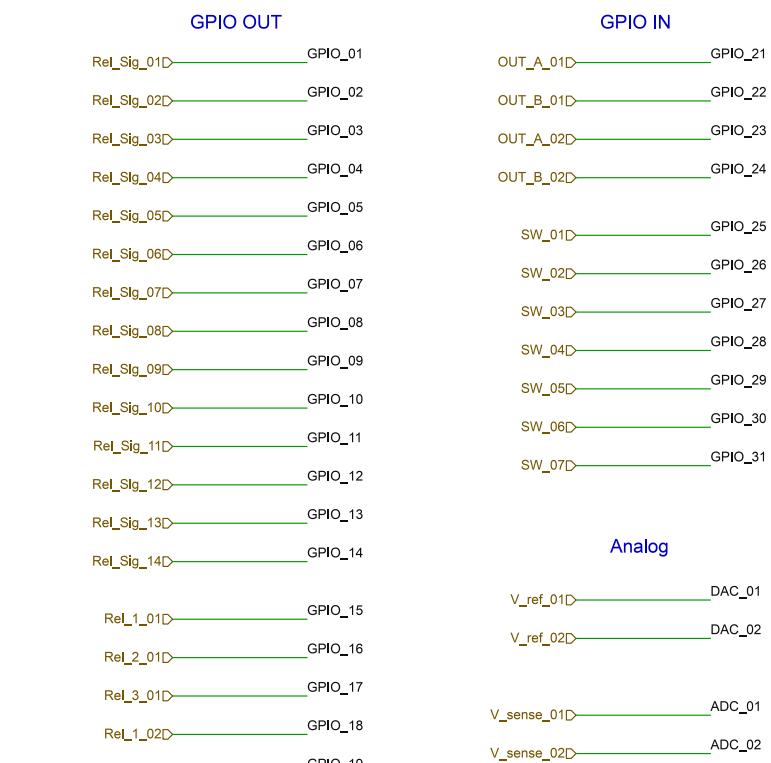
- Power Output Interface – Block Diagram



**Required Peripherals**

1) GPIO	24
2) UART	2
3) SPI	1
4) I2C	3
5) DAC	2
6) ADC	2





15

**Title: Controller Unit**

\*\*\* STM32H743 Dev Board \*\*\*

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File: STM32H743 Dev Board.kicad\_sch

Drawn by: Nimesh Kavinda

Size: A4 Date: 2025-01-28

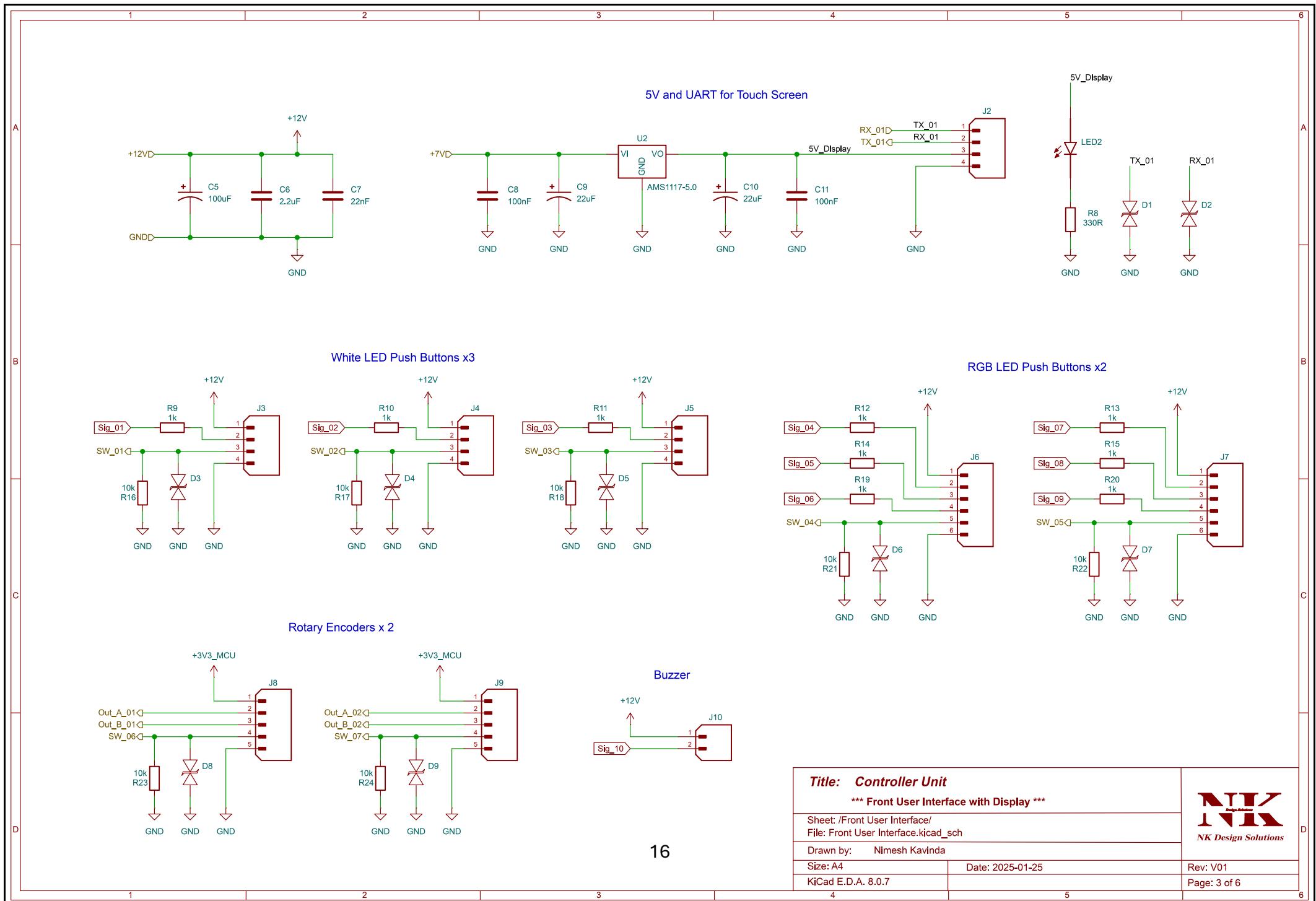
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Rev: V01

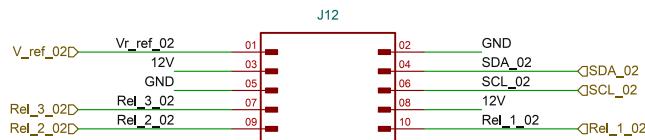
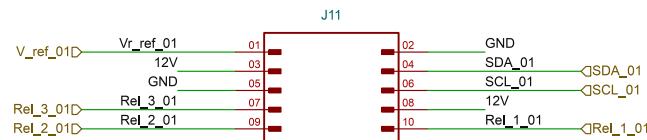
Page: 2 of 6



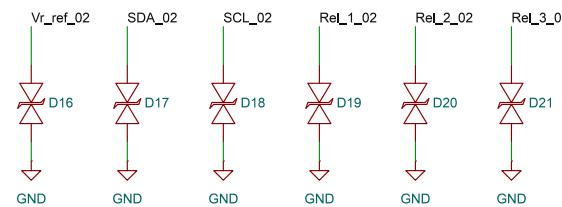
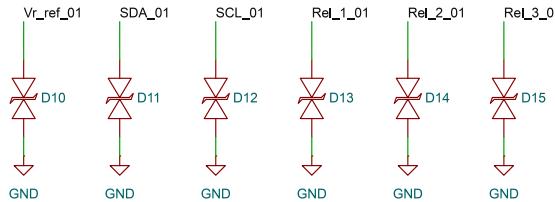
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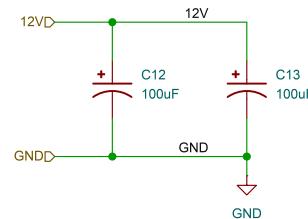
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B



C



**Title: Controller Unit**

\*\*\* Output Interface Connectors \*\*\*

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Drawn by: Nimesh Kavinda

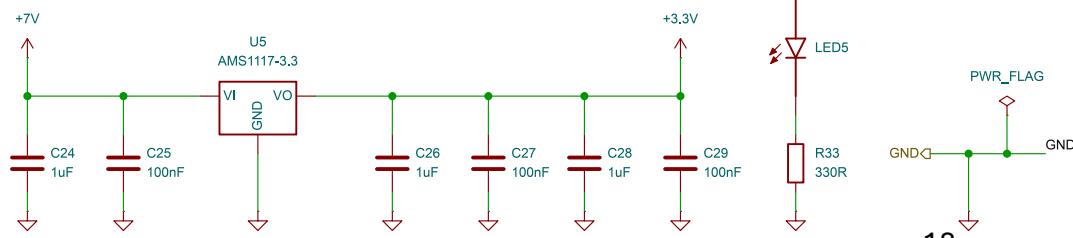
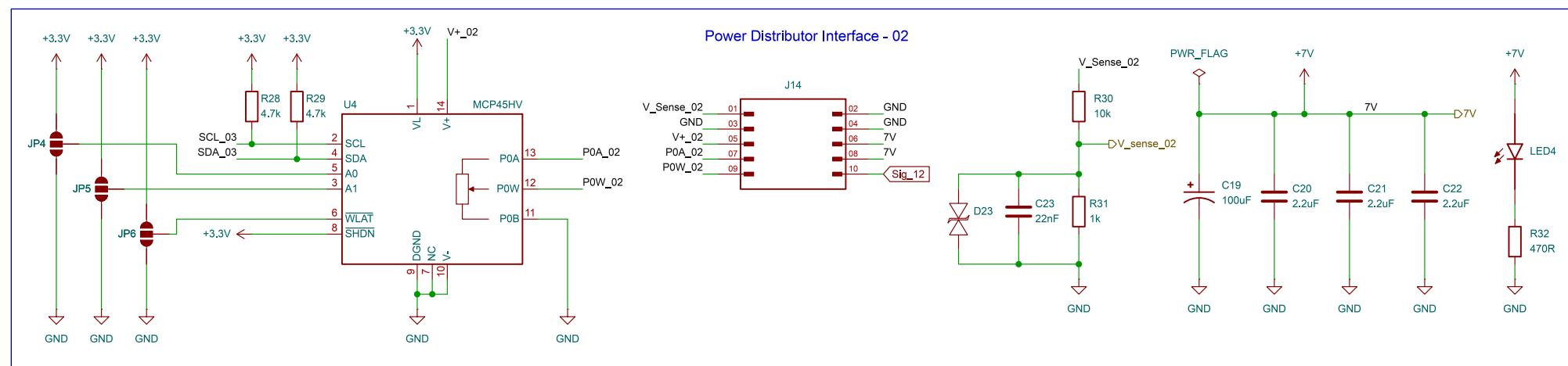
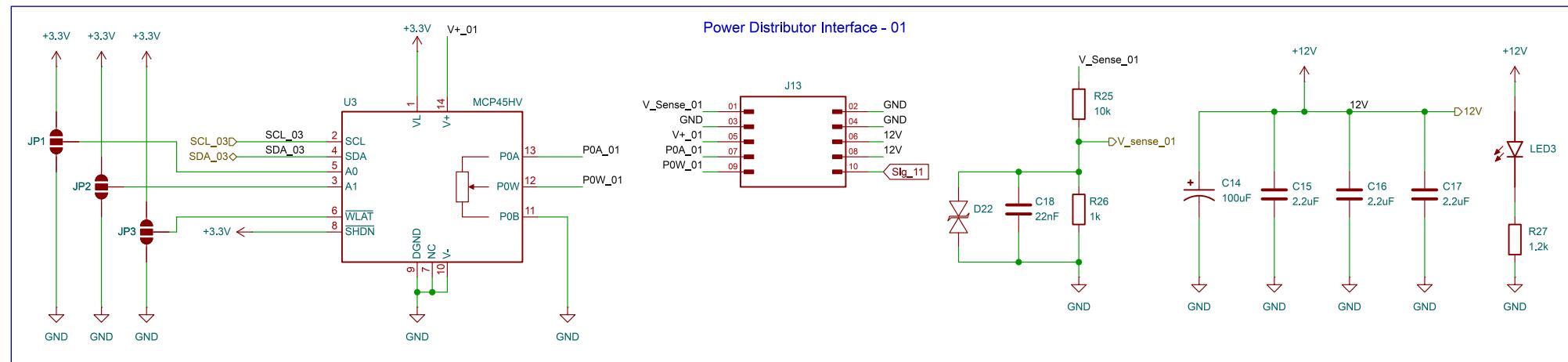
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Page: 4 of 6

1 2 3 4 5 6



**Title:** Controller Unit

\*\*\* Power Distributor Interfaces \*\*\*

Sheet: /Power Distributor Interfaces/

File: Power Distributors.kicad\_sch

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Page 4

NK  
Design Selection

**NK Design Solutions**

Rev: V01

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