

NOTES:

1. Input voltage dividers as shown are suitable for analog signals up to 5V peak.
2. To use higher input voltages, increase the series input resistor:
 - 12v: 56k
 - 24v: 100k
 - 48v: 330k

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Sheet: /ADC1 - 12v/
 File: ADC_1.kicad_sch

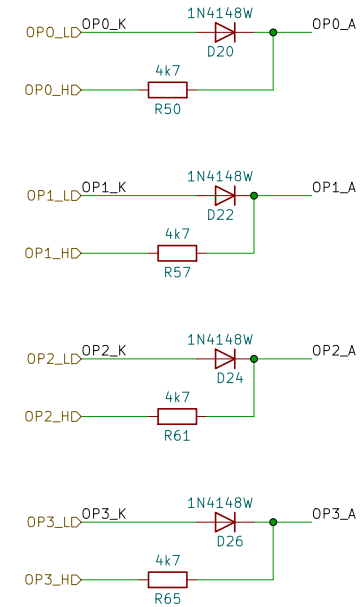
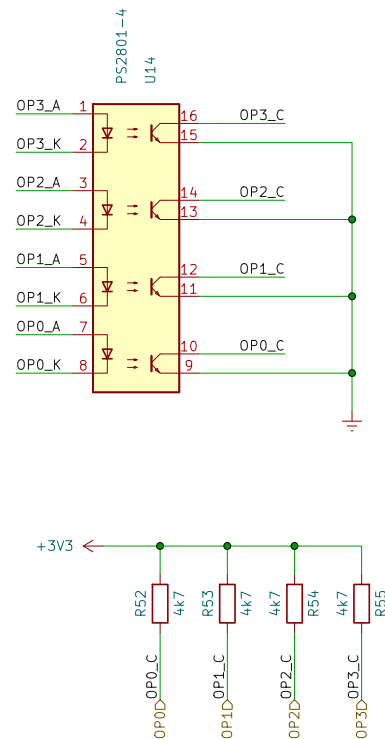
Title: MCC400 MARINE CABIN CONTROLLER

Size: A4 Date: 2023-06-05

KiCad E.D.A. kicad 7.0.2

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NOTES:

1. The 4k7 pull-up resistors (R52, R53, R54 and R55) limit the collector current to 570uA at saturation.
2. The 4k7 input resistors (R50, R57, R61 and R65) limit the LED forward current to between 400uA and 4.8mA with the input voltage between 3v3 and 24v.
3. The input resistors are nominally 1/8W rated, making them suitable for a 100% duty-cycle up to 24v.
3. Schottky diodes D20, D22, D24 and D26 protect the inputs against reverse biasing.
4. See the datasheet and calculations workbook in the project folder (DESIGN_CALCULATIONS.xlsx) for more information.

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Sheet: /4-CH OPTO_ISOLATED INPUTS/

File: opto_isolated_input.kicad_sch

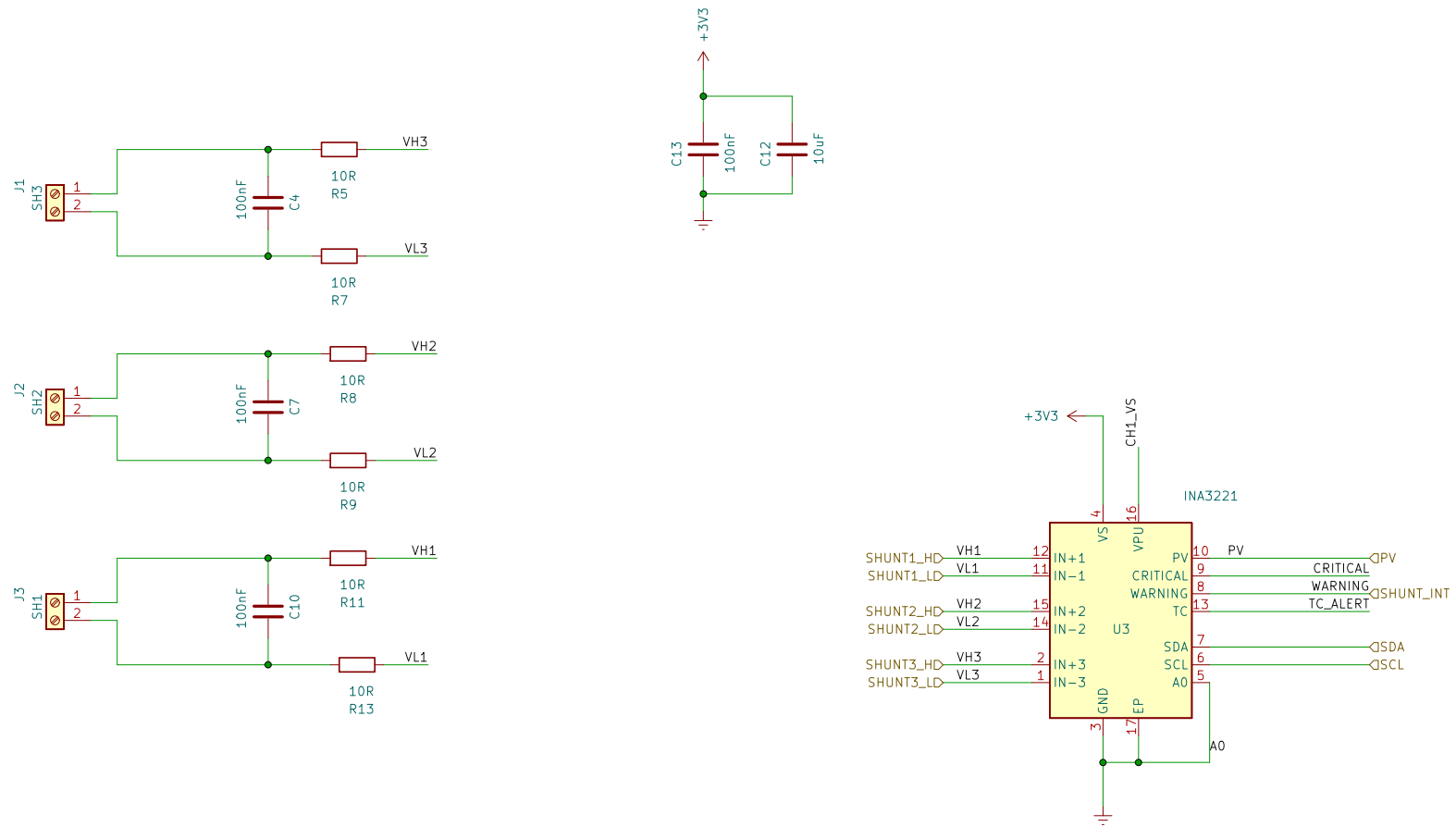
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Sheet: /3-CHANNEL SHUNT MONITOR/

File: 3-ch_shunt_monitor.kicad_sch

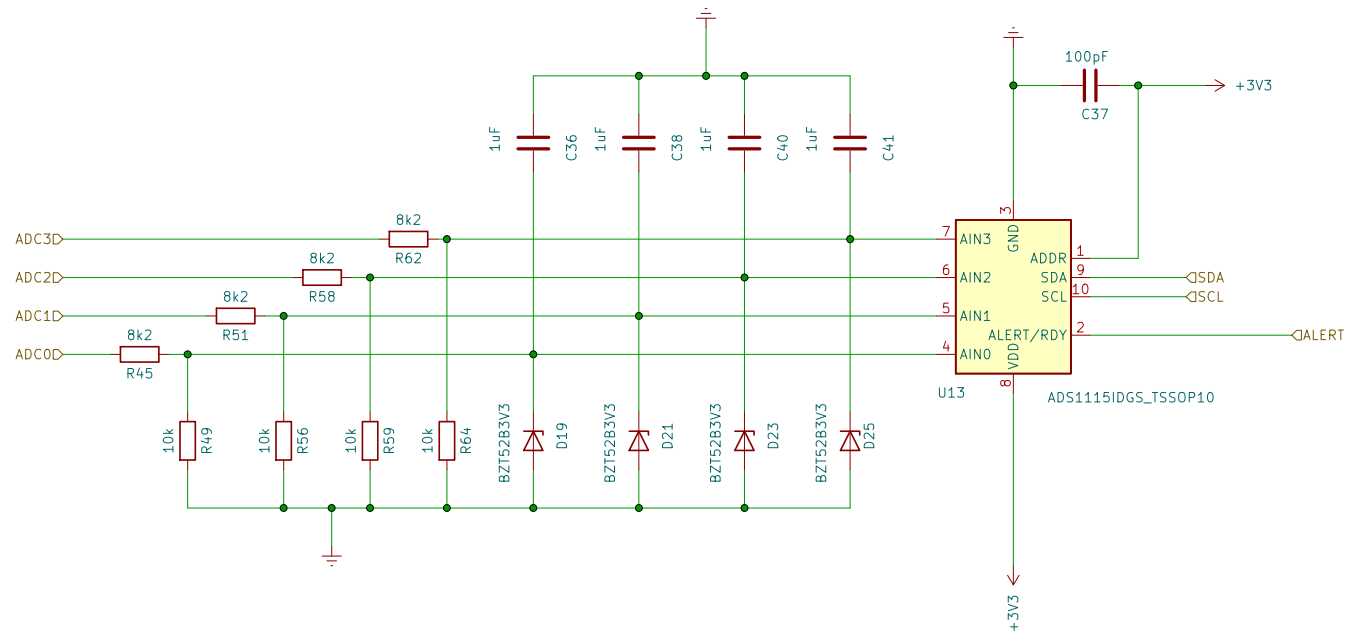
Title: MCC400 MARINE CABIN CONTROLLER

Size: A4 Date: 2023-06-05

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Rev: 2.1

Id: 8/17



NOTES:

1. Input voltage dividers as shown are suitable for analog signals up to 5V peak.
3. To use higher input voltages, add an additional series input resistor:
 - 12v: 20k
 - 24v: 56k
 - 48v: 330k

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Sheet: /ADC2 - 5v/
 File: ADC_2_12v.kicad_sch

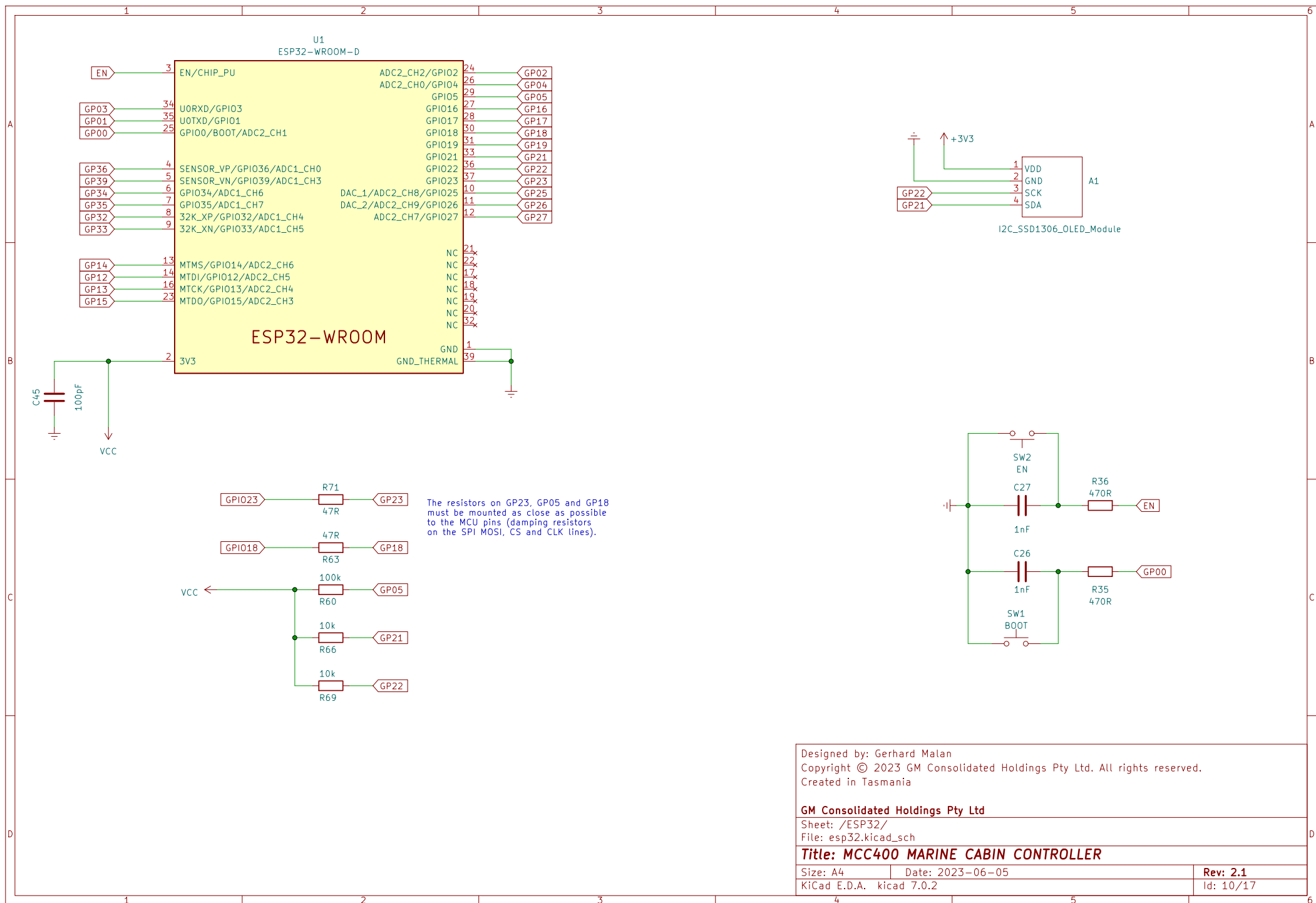
Title: MCC400 MARINE CABIN CONTROLLER

Size: A4 Date: 2023-06-05

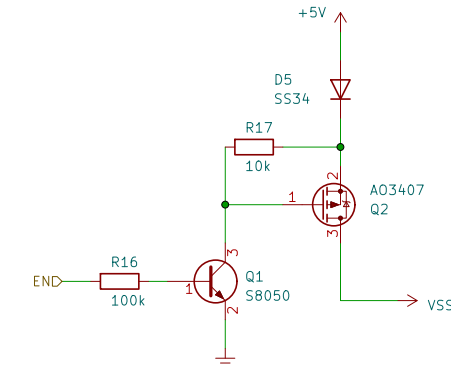
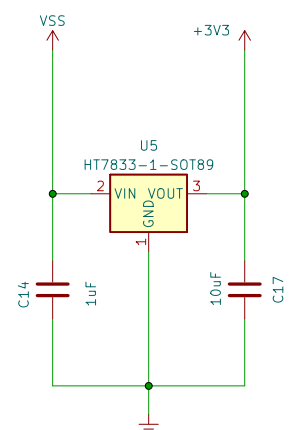
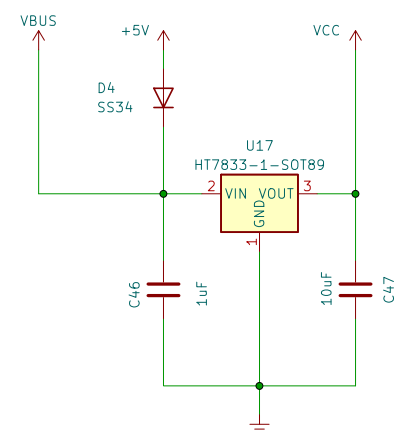
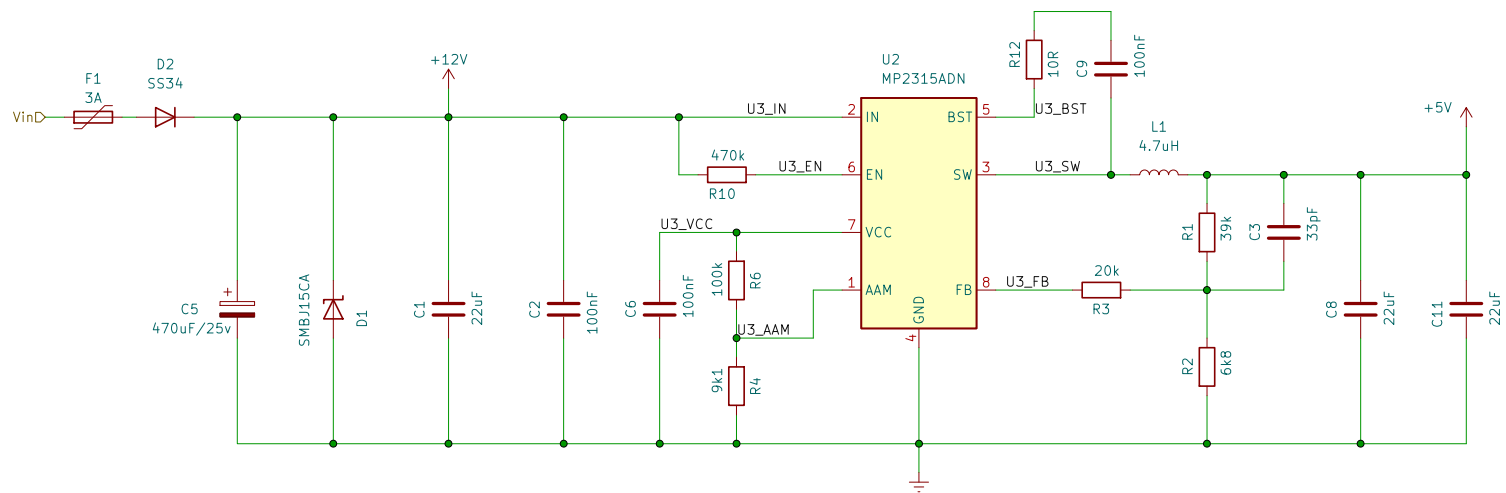
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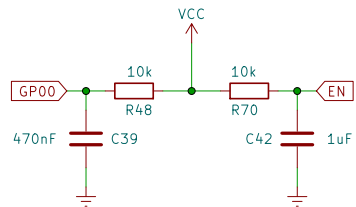
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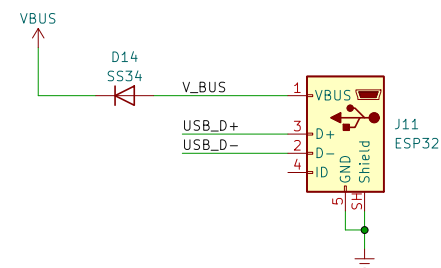
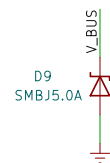
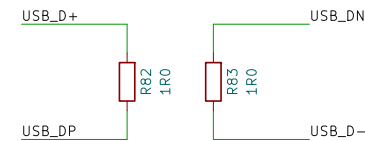
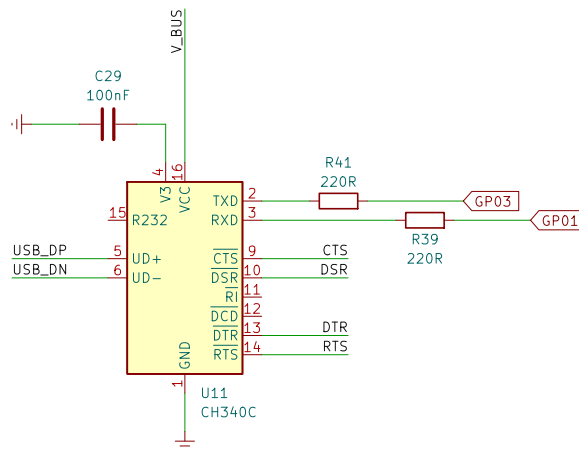
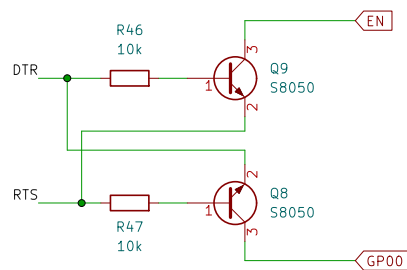
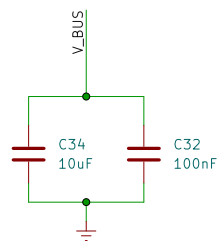
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Sheet: /ESP32/		
File: esp32.kicad_sch		
Title: MCC400 MARINE CABIN CONTROLLER		
Size: A4	Date: 2023-06-05	Rev: 2.1
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Sheet: /POWER SUPPLY/		
File: power_supply.kicad_sch		
Title: MCC400 MARINE CABIN CONTROLLER		
Size: A4	Date: 2023-06-05	Rev: 2.1
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The pull-up resistors and bypass capacitors on GP0 and EN are required for reliable functioning of the auto-flash programming circuit.



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Sheet: /USB_FLASH/
File: cH304_usb.kicad_sch

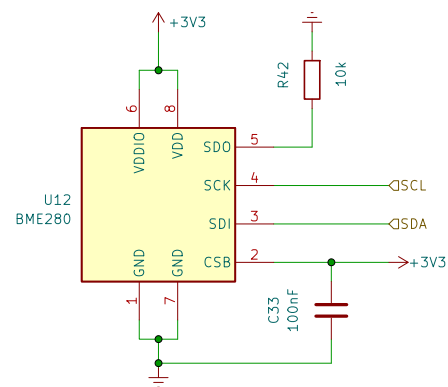
Title: MCC400 MARINE CABIN CONTROLLER

Size: A4 Date: 2023-06-05

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Sheet: /BAROMETER/
File: BAROMETER.kicad_sch

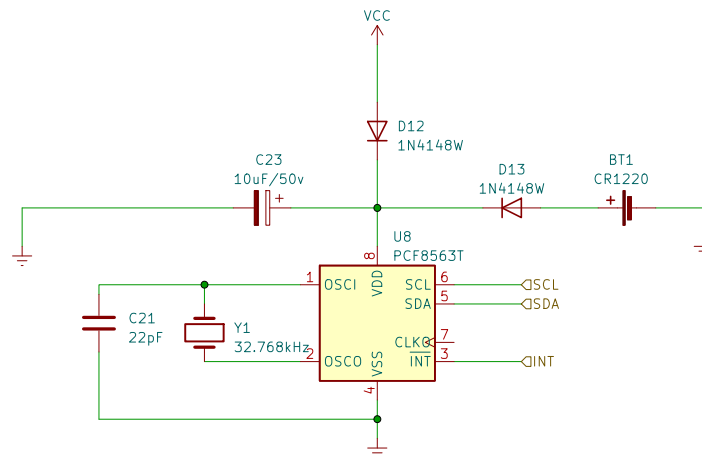
Title: MCC400 MARINE CABIN CONTROLLER

Size: A4 Date: 2023-06-05

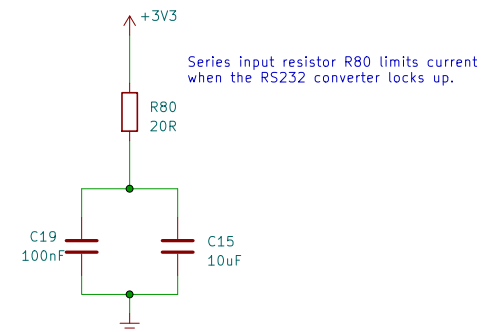
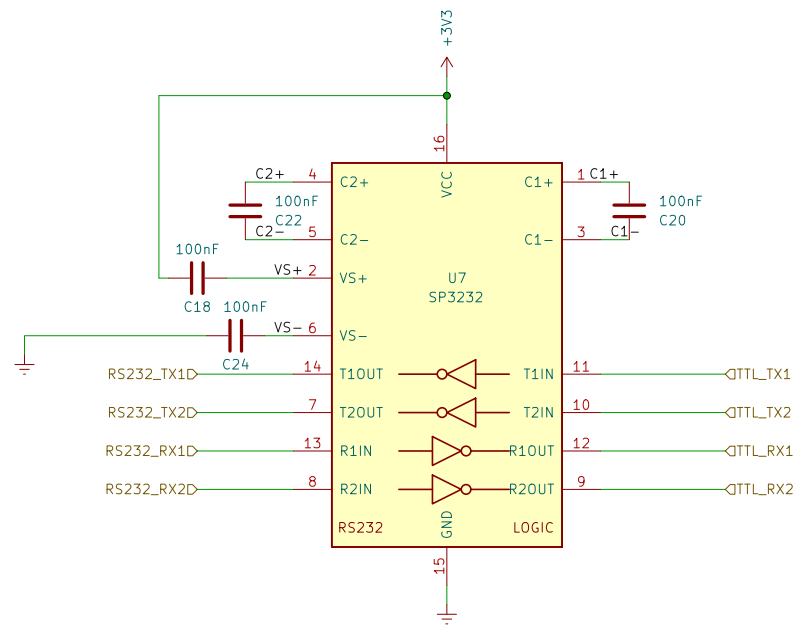
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Rev: 2.1

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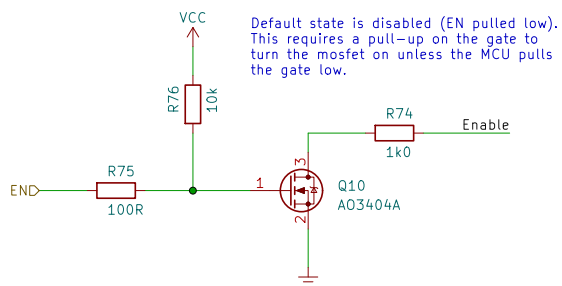
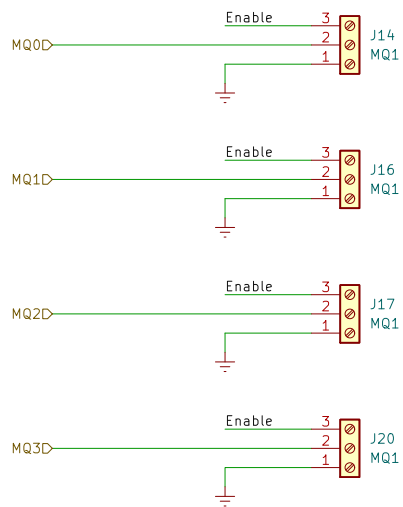


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File: rtc.kicad_sch		
Title: MCC400 MARINE CABIN CONTROLLER		
Size: A4	Date: 2023-06-05	Rev: 2.1
KiCad E.D.A. kicad 7.0.2	Id: 13/17	

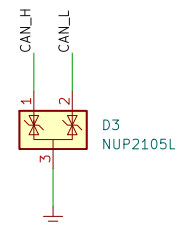
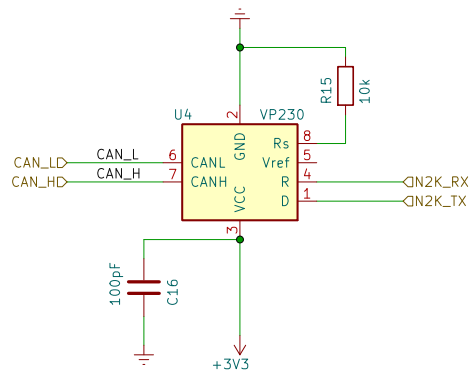
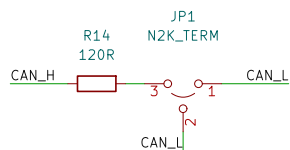


NOTE: Unused TTL inputs must be connected to Vcc or Ground to avoid over-heating issues.

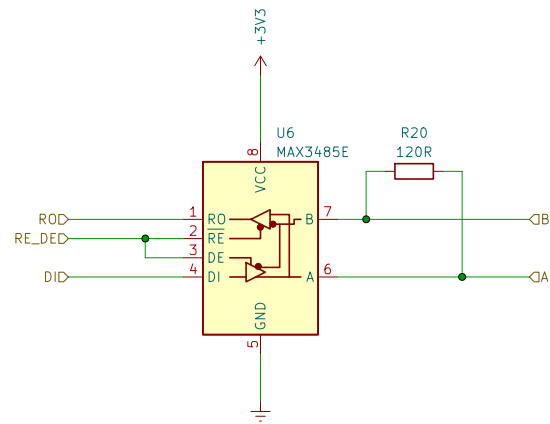
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Title: MCC400 MARINE CABIN CONTROLLER		
Size: A4	Date: 2023-06-05	Rev: 2.1
KiCad E.D.A. kicad 7.0.2		Id: 13/17



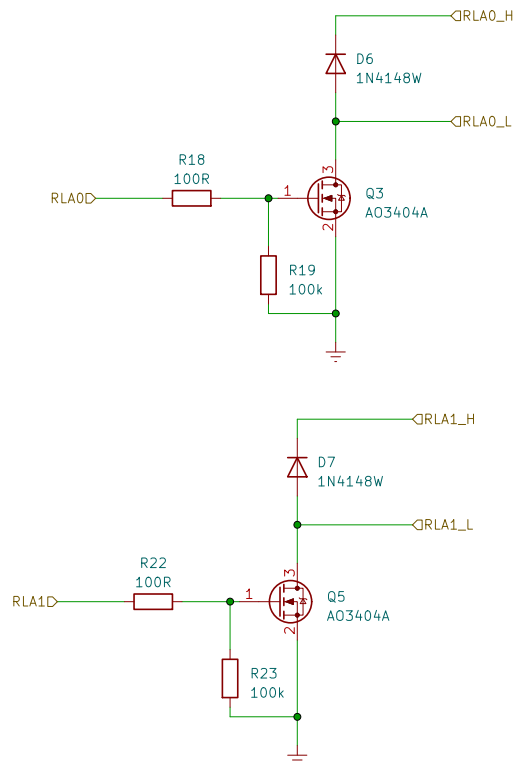
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Sheet: /GAS SENSORS/		
File: gas_sensors.kicad_sch		
Title: MCC400 MARINE CABIN CONTROLLER		
Size: A4	Date: 2023-06-05	Rev: 2.1
KiCad E.D.A. kicad 7.0.2		Id: 14/17



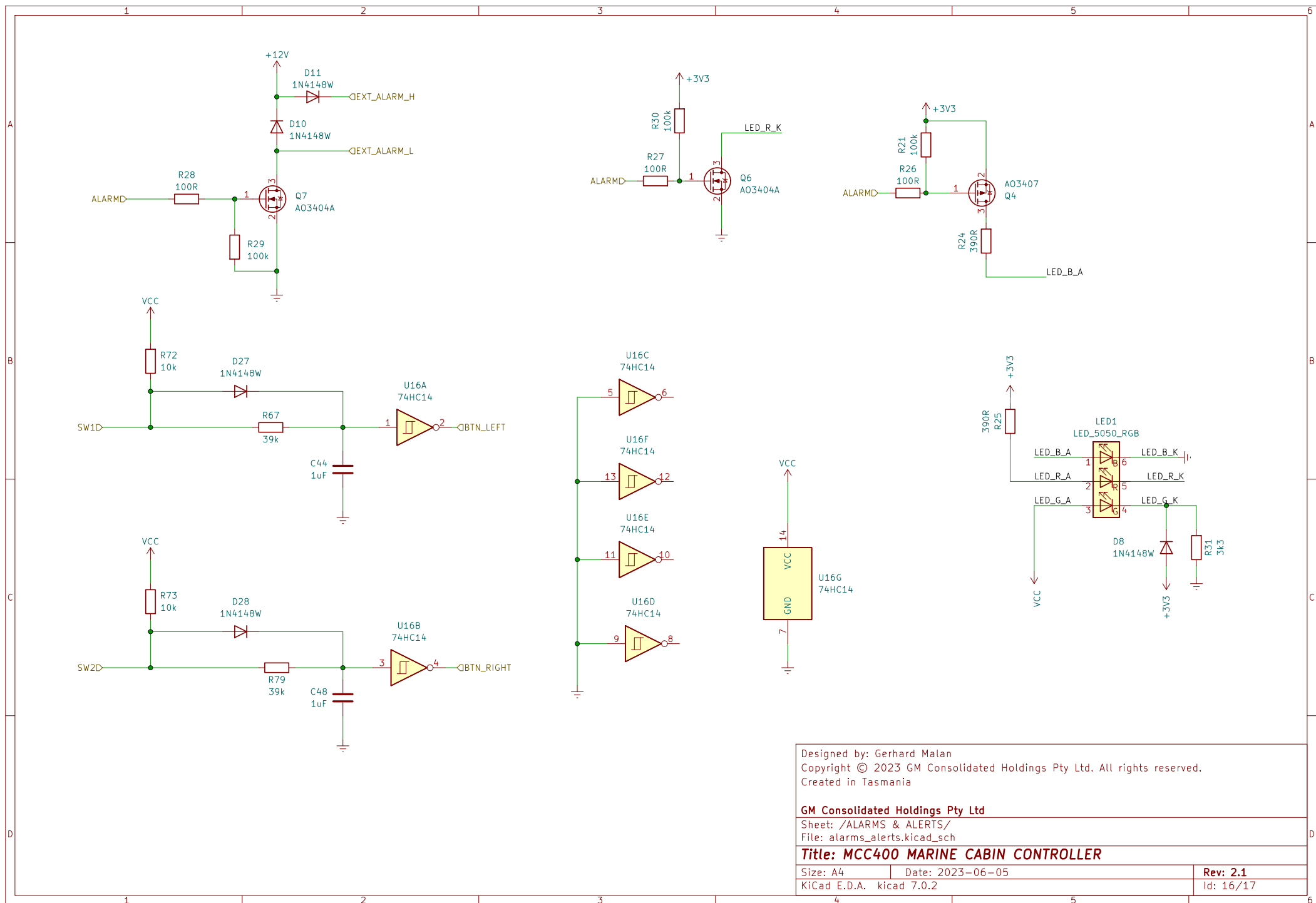
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File: N2K_can_transceiver.kicad_sch		
Title: MCC400 MARINE CABIN CONTROLLER		
Size: A4	Date: 2023-06-05	Rev: 2.1
KiCad E.D.A. kicad 7.0.2	Id: 14/17	

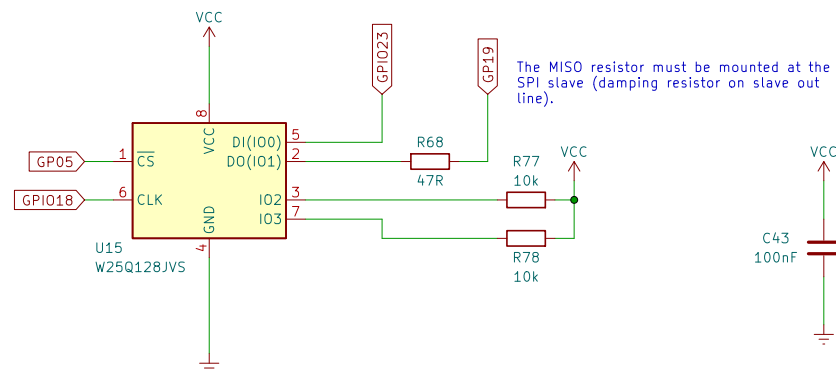


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Sheet: /RS-485/ File: rs485.kicad_sch		
Title: MCC400 MARINE CABIN CONTROLLER		
Size: A4	Date: 2023-06-05	Rev: 2.1
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Sheet: /2CH OPTO-ISOLATED OUPUTS/ File: opto_isolated_outputs.kicad_sch		
Title: MCC400 MARINE CABIN CONTROLLER		
Size: A4	Date: 2023-06-05	Rev: 2.1
KiCad E.D.A. kicad 7.0.2		Id: 15/17





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Sheet: /FLASH STORAGE/		
File: flash_storage.kicad_sch		
Title: MCC400 MARINE CABIN CONTROLLER		
Size: A4	Date: 2023-06-05	Rev: 2.1
KiCad E.D.A. kicad 7.0.2	Id: 17/17	