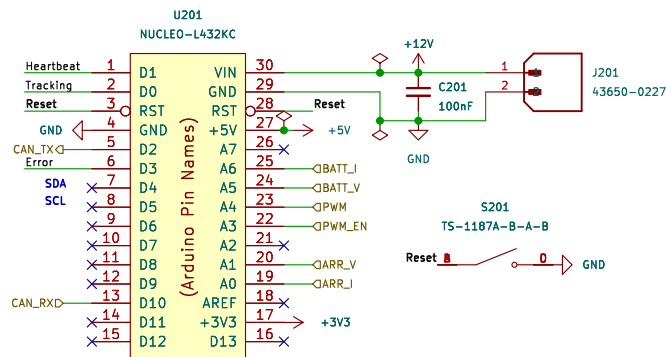
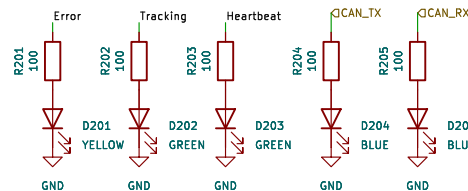


## Controller

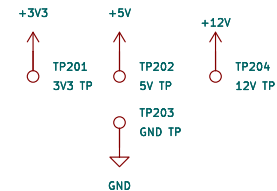
D2 and D10 are reserved for USB and CAN communication.  
VIN can accept +7V-12V.  
Do not plug in USB while VIN is powered.  
USB without VIN input results in -5V backport output on VIN.



## LEDs



## Testpoints



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Matthew Yu  
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Sheet: /controller/  
File: controller.kicad\_sch

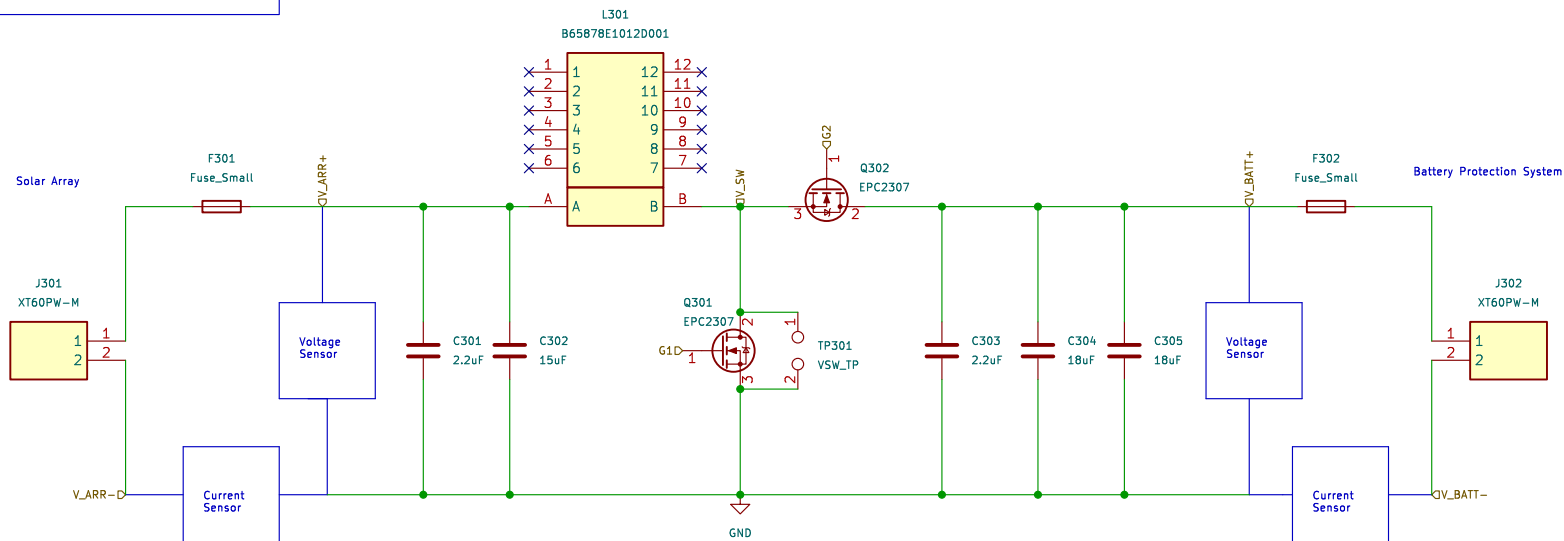
**Title: Sunscatter MPPT**

Size: A4 Date: 2023-07-21  
KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

Rev: v0.2.0  
Id: 2/6

Converter

- Core:
- Existing:
    - PQ 26/25 N97 TDK core (871-B65877A0000R097)
    - Associated bobbin (871-B65878E1012D001)
    - Used 21 AWG wiring
    - Thinnest material gap
    - 175uH, ~9 turns
    - Likely core and conduction loss: 5% of P\_TRANSFER, mostly core loss
  - Proposed:
    - PQ 20/16 N95 Ferroxcube core (1779-1173-ND)
    - Associated bobbin (1779-1380-ND)
    - Use 19 AWG wiring
    - Use thicker material gap, ~0.3 to ~0.5 mm
    - Use ~15-30 turns to hit 250 uH target
    - Anticipated core and conduction loss: ~1 W



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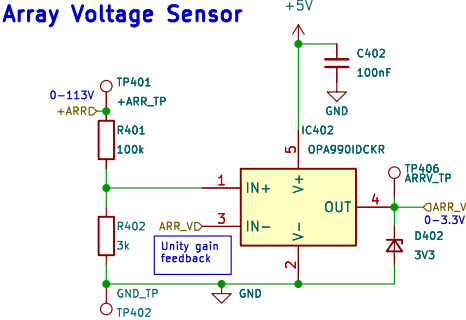
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File: converter.kicad\_sch

**Title: Sunscatter MPPT**

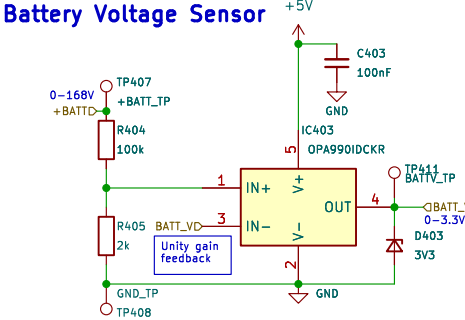
Size: A4 Date: 2023-07-21  
KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

**Rev: v0.2.0**  
Id: 3/6

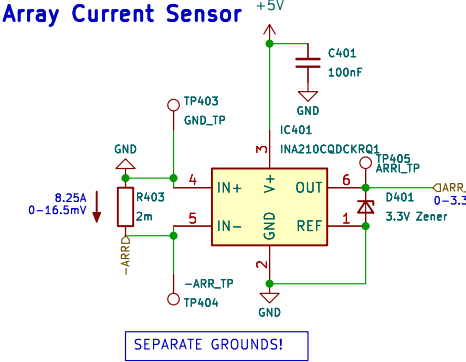
Array Voltage Sensor



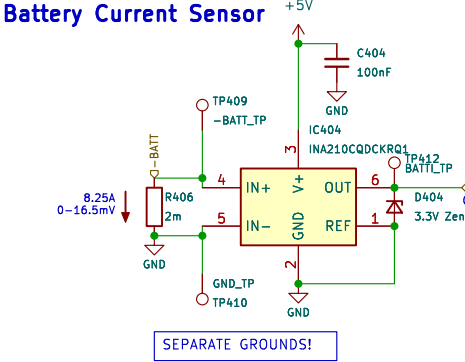
Battery Voltage Sensor



Array Current Sensor



Battery Current Sensor



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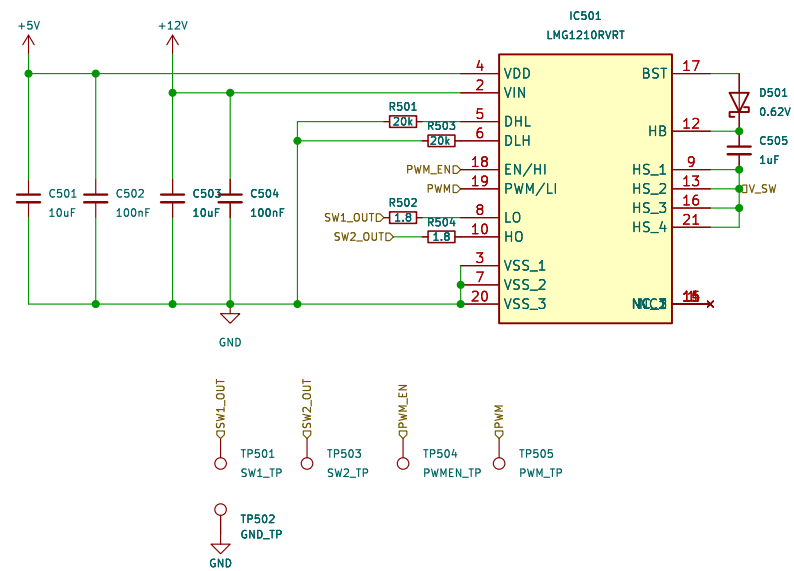
Sheet: /sensors/  
File: sensors.kicad\_sch

**Title: Sunscatter MPPT**

Size: A4 Date: 2023-07-21  
KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

Rev: v0.2.0  
Id: 4/6

## Gate Driver



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Sheet: /gate\_driver/  
File: gate\_driver.kicad\_sch

**Title: Sunscatter MPPT**

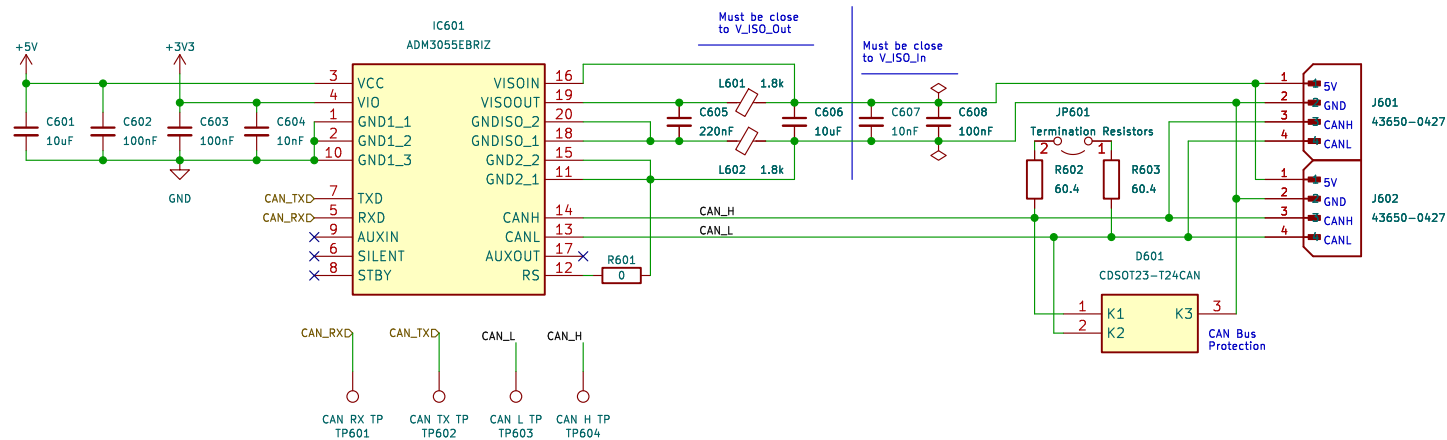
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KiCad E.D.A.	kicad 7.0.6-7.0.6~ubuntu22.04.1
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Rev: v0.2.0

Id: 5/6

# CAN



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Sheet: /comm\_can/  
File: comm\_can.kicad\_sch

**Title: Sunscatter MPPT**

Size: A4 Date: 2023-07-21  
KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

**Rev: v0.2.0**  
Id: 6/6