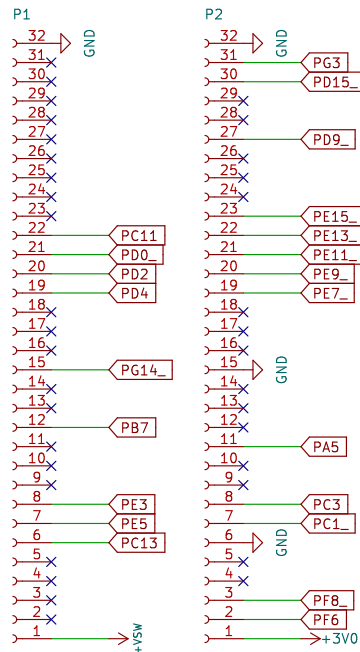


# Cable-Monitor

## A Project by A.Horvat and T.Wey

### for PM3 Module ZHAW

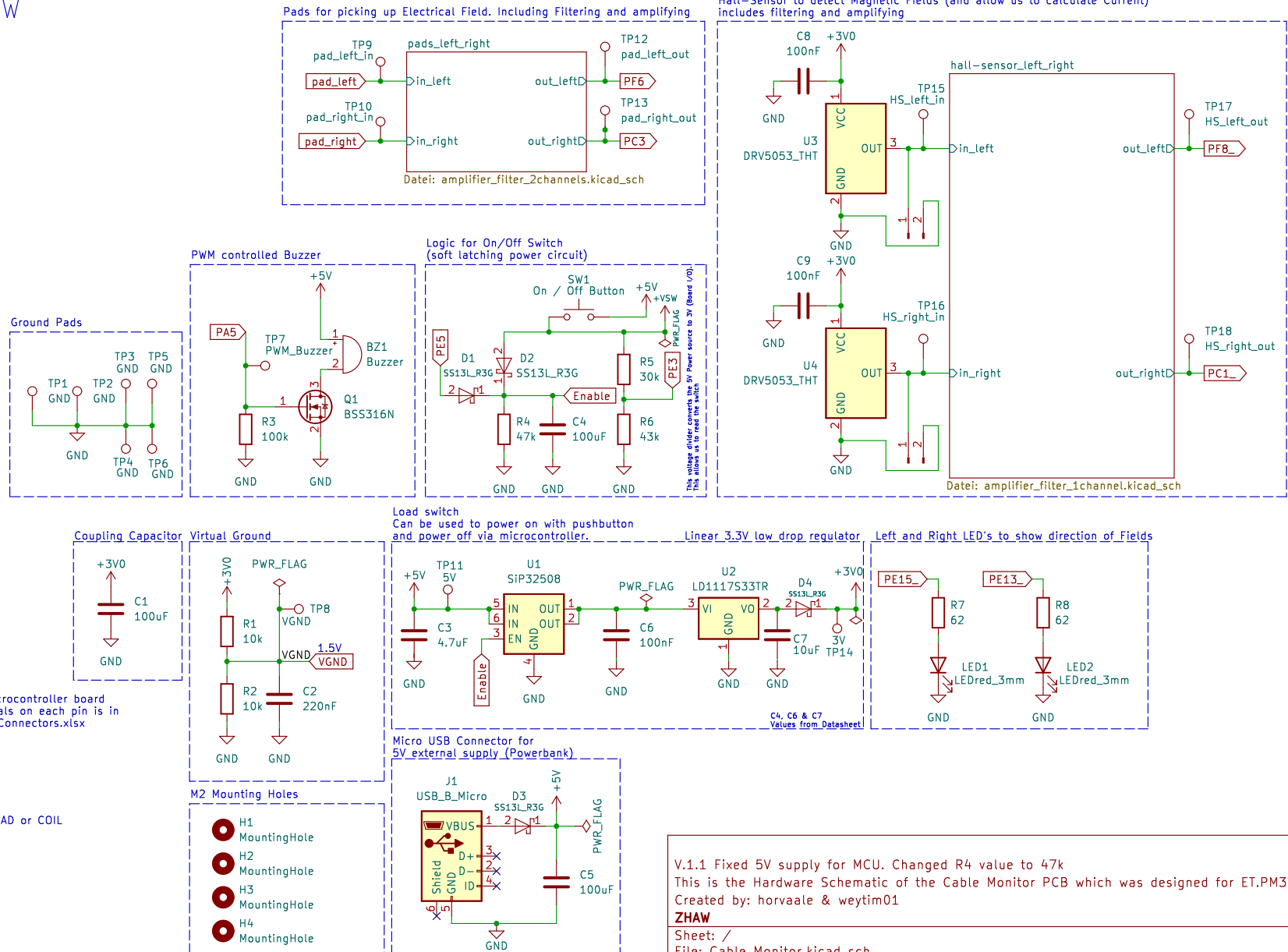


GPIOs with names ending by a \_ might be used for board peripherals. Check their availability.

The outline of the extension connectors of the microcontroller board with a list of the available connectors and peripherals on each pin is in [Microcontroller\\_STM32F429/Datasheets/Extension\\_Connectors.xlsx](#)

Recommended use of ADC inputs for ET.PM3:  
 PF6 = ADC3\_IN4 = PAD\_LEFT  
 PC3 = ADC123\_IN13 = PAD\_RIGHT  
 PF8 = ADC3\_IN6 = COIL\_LEFT  
 PC1 = ADC123\_IN11 = COIL\_RIGHT  
 PA5 = ADC12\_IN5 (= DAC\_OUT2) if additional PAD or COIL

DAC output controls VCO input for ET.PM4  
 PA5 = ADC12\_IN5 = DAC\_OUT2



V.1.1 Fixed 5V supply for MCU. Changed R4 value to 47k  
 This is the Hardware Schematic of the Cable Monitor PCB which was designed for ET.PM3  
 Created by: horvaale & weytim01

**ZHAW**

Sheet: /  
 File: Cable\_Monitor.kicad\_sch

**Title: Cable Monitor**

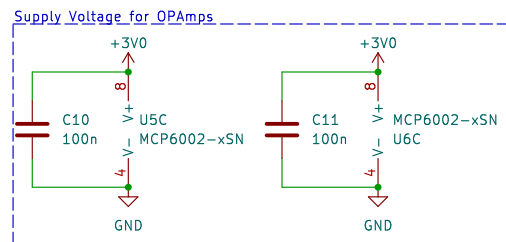
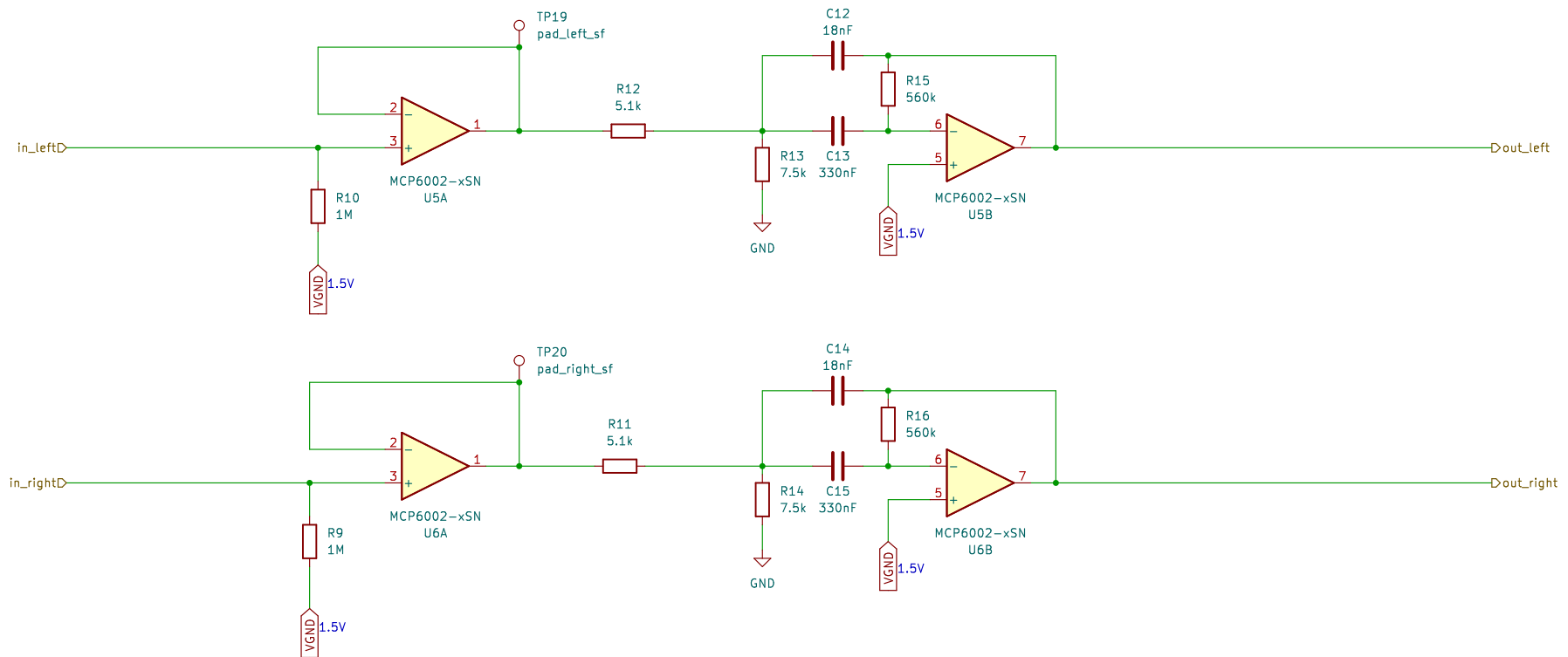
Size: A4 Date: 2023-09-29

KiCad E.D.A. eeschema 7.0.7

**Rev: V.1.1**

Id: 1/3

Filtering and Amplification to measure Electric Fields.  
 This will allow us to measure Fields generated by Cables and thus allow us to calculate the distance from an AC Voltage source.



Pads for measuring electric fields (voltage)

Created by: horvaale & weytim01

**ZHAW**

Sheet: /pads\_left\_right/

File: amplifier\_filter\_2channels.kicad\_sch

**Title: Amplifiers and Filters for Pads**

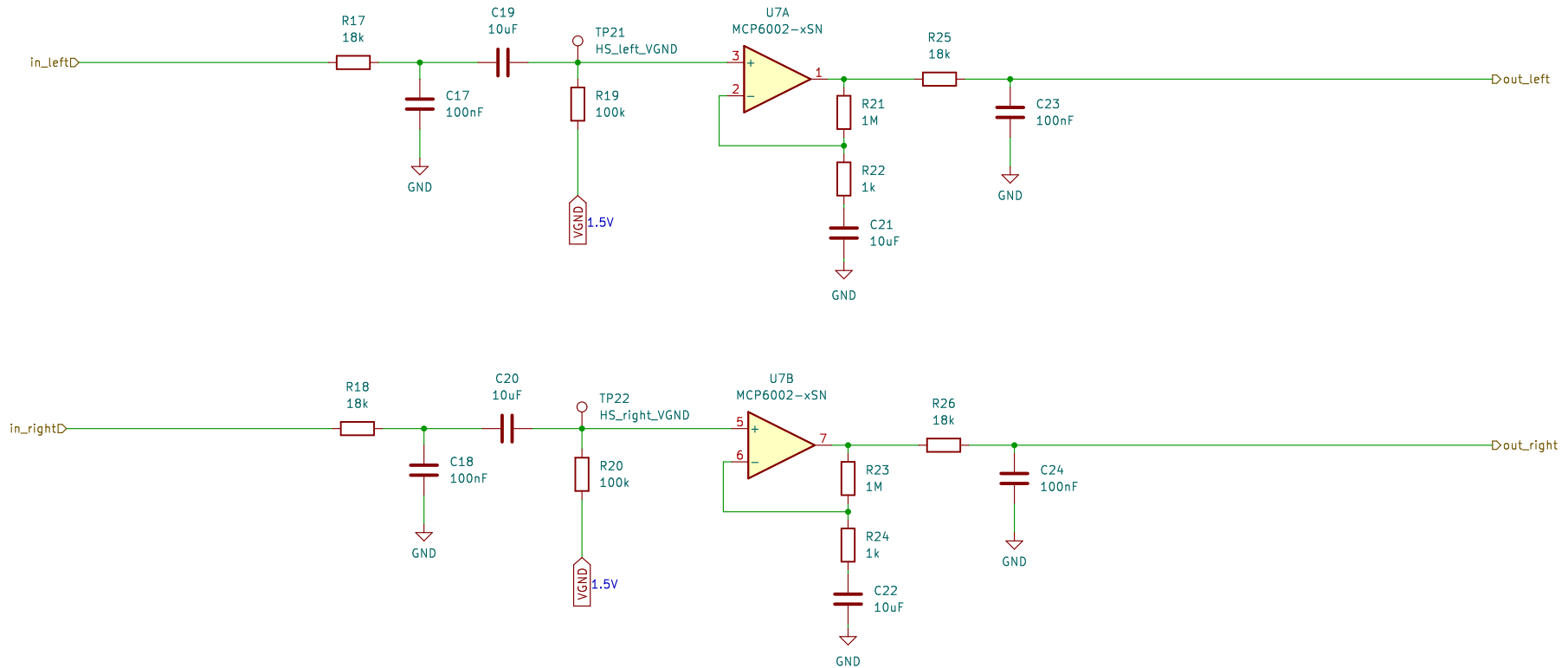
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KiCad E.D.A. eeschema 7.0.7

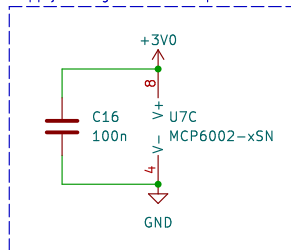
**Rev: V.1.1**

Id: 2/3

Filtering and Amplification used for Hall-Sensors.  
 The Hall-Sensors will be used to measure a magnetic Field and thus allow us to calculate a current.



Supply Voltage for OP-Amp



Hall-Sensor's used to measure magnetic Field (current)  
 Created by: horvaale & weytim01

**ZHAW**

Sheet: /hall-sensor\_left\_right/  
 File: amplifier\_filter\_1channel.kicad\_sch

**Title: Amplifiers and Filters for Hall-Sensor**

Size: A4 Date: 2022-12-22

KiCad E.D.A. eeschema 7.0.7

**Rev: V.1.1**

Id: 3/3