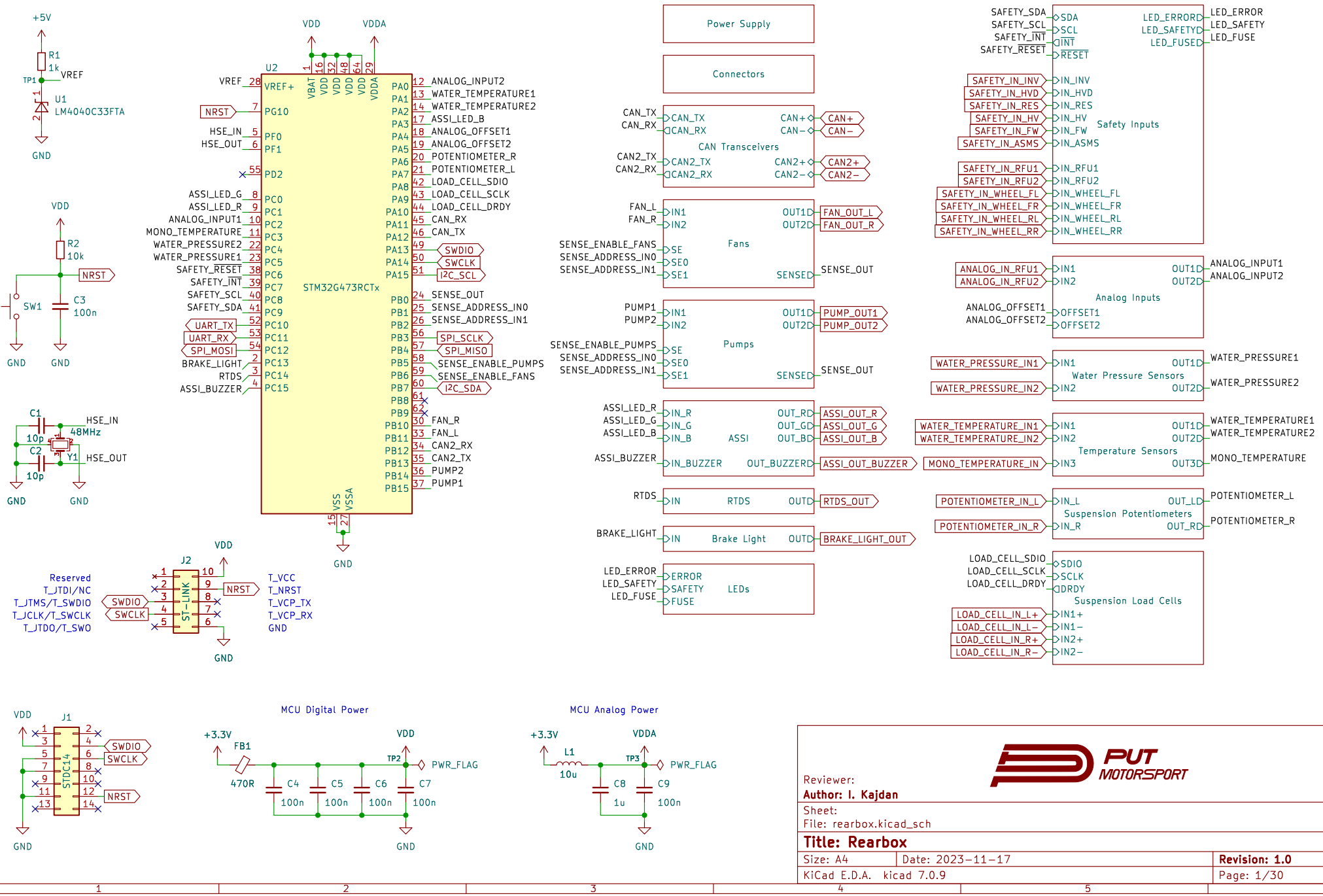
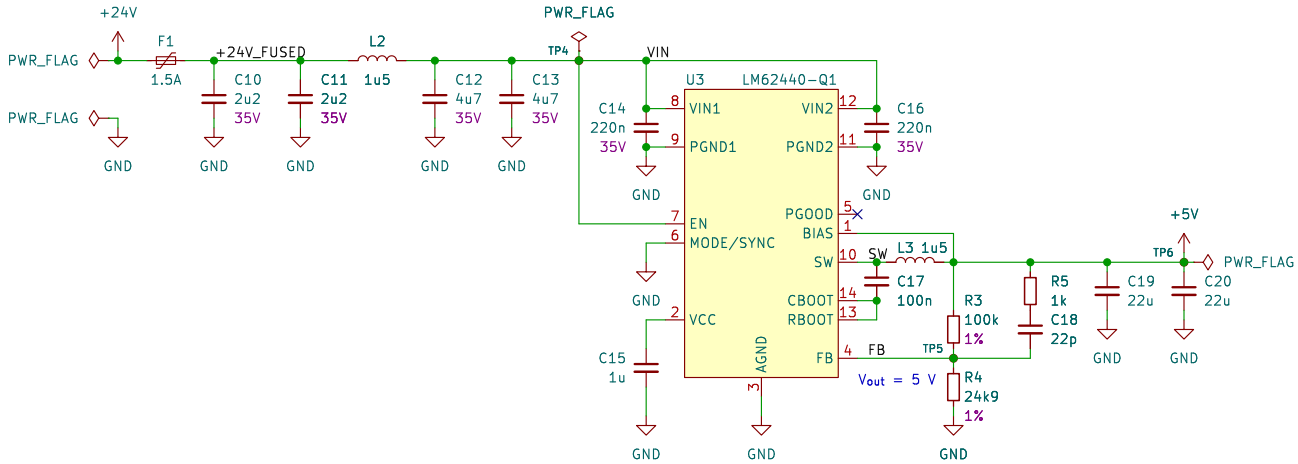
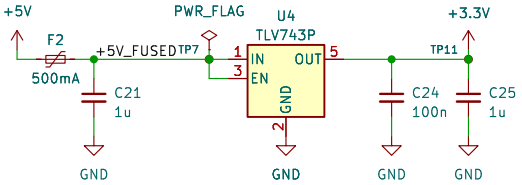
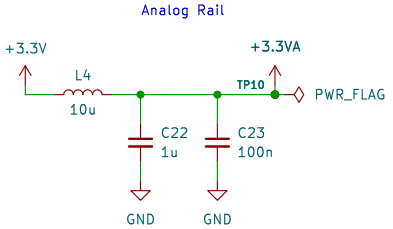
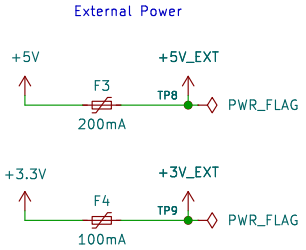

+5V
R1
1k
TP1
VREF
U1
LM4040C33FTA
GND
VDD
R2
10k
NRST
SW1
C3
100n
GND
GND
C1
HSE_IN
48MHz
10p
C2
Y1
HSE_OUT
10p
GND
GND
VDD
VDDA
U2
VREF
NRST
HSE_IN
HSE_OUT
ASSI_LED_G
ASSI_LED_R
ANALOG_INPUT1
MONO_TEMPERATURE
WATER_PRESSURE2
WATER_PRESSURE1
SAFETY_RESET
SAFETY_INT
SAFETY_SCL
SAFETY_SDA
UART_TX
UART_RX
SPI_MOSI
BRAKE_LIGHT
RTDS
ASSI_BUZZER
STM32G473RCTx
ANALOG_INPUT2
WATER_TEMPERATURE1
WATER_TEMPERATURE2
ASSI_LED_B
ANALOG_OFFSET1
ANALOG_OFFSET2
POTENTIOMETER_R
POTENTIOMETER_L
LOAD_CELL_SDIO
LOAD_CELL_SCLK
LOAD_CELL_DRDY
CAN_RX
CAN_TX
SWDIO
SWCLK
I2C_SCL
SENSE_OUT
SENSE_ADDRESS_IN0
SENSE_ADDRESS_IN1
SPI_SCLK
SPI_MISO
SENSE_ENABLE_PUMPS
SENSE_ENABLE_FANS
I2C_SDA
FAN_R
FAN_L
CAN2_RX
CAN2_TX
PUMP2
PUMP1
VSS
VSSA
GND
J2
Reserved
T_JTDI/NC
T_JTMS/T_SWDIO
T_JCLK/T_SWCLK
T_JTDO/T_SWO
ST-LINK
T_VCC
T_NRST
T_VCP_TX
T_VCP_RX
GND
Power Supply
Connectors
CAN_TX
CAN_RX
CAN+
CAN−
CAN Transceivers
CAN2_TX
CAN2_RX
CAN2+
CAN2−
FAN_L
FAN_R
IN1
IN2
OUT1
OUT2
FAN_OUT_L
FAN_OUT_R
Fans
SENSE_ENABLE_FANS
SENSE_ADDRESS_IN0
SENSE_ADDRESS_IN1
SE
SE0
SE1
SENSE_OUT
PUMP1
PUMP2
PUMP_OUT1
PUMP_OUT2
Pumps
ASSI_LED_R
ASSI_LED_G
ASSI_LED_B
IN_R
IN_G
IN_B
OUT_RD
OUT_GD
OUT_BD
ASSI_OUT_R
ASSI_OUT_G
ASSI_OUT_B
ASSI
ASSI_BUZZER
IN_BUZZER
OUT_BUZZERD
ASSI_OUT_BUZZER
RTDS
IN
OUTD
RTDS_OUT
BRAKE_LIGHT
Brake Light
BRAKE_LIGHT_OUT
LED_ERROR
LED_SAFETY
LED_FUSE
ERROR
SAFETY
FUSE
LEDs
SAFETY_SDA
SAFETY_SCL
SAFETY_INT
SAFETY_RESET
SDA
SCL
INT
RESET
LED_ERRORD
LED_SAFETYD
LED_FUSED
LED_ERROR
LED_SAFETY
LED_FUSE
SAFETY_IN_INV
SAFETY_IN_HVD
SAFETY_IN_RES
SAFETY_IN_HV
SAFETY_IN_FW
SAFETY_IN_ASMS
IN_INV
IN_HVD
IN_RES
IN_HV
IN_FW
IN_ASMS
Safety Inputs
SAFETY_IN_RFU1
SAFETY_IN_RFU2
SAFETY_IN_WHEEL_FL
SAFETY_IN_WHEEL_FR
SAFETY_IN_WHEEL_RL
SAFETY_IN_WHEEL_RR
IN_RFU1
IN_RFU2
IN_WHEEL_FL
IN_WHEEL_FR
IN_WHEEL_RL
IN_WHEEL_RR
ANALOG_IN_RFU1
ANALOG_IN_RFU2
ANALOG_INPUT1
ANALOG_INPUT2
Analog Inputs
ANALOG_OFFSET1
ANALOG_OFFSET2
OFFSET1
OFFSET2
WATER_PRESSURE_IN1
WATER_PRESSURE_IN2
WATER_PRESSURE1
WATER_PRESSURE2
Water Pressure Sensors
WATER_TEMPERATURE_IN1
WATER_TEMPERATURE_IN2
WATER_TEMPERATURE1
WATER_TEMPERATURE2
Temperature Sensors
MONO_TEMPERATURE_IN
MONO_TEMPERATURE
POTENTIOMETER_IN_L
POTENTIOMETER_IN_R
IN_L
IN_R
OUT_LD
OUT_RD
POTENTIOMETER_L
POTENTIOMETER_R
Suspension Potentiometers
LOAD_CELL_SDIO
LOAD_CELL_SCLK
LOAD_CELL_DRDY
SDIO
SCLK
DRDY
Suspension Load Cells
LOAD_CELL_IN_L+
LOAD_CELL_IN_L−
LOAD_CELL_IN_R+
LOAD_CELL_IN_R−
IN1+
IN1−
IN2+
IN2−
VDD
J1
STDC14
SWDIO
SWCLK
NRST
GND
MCU Digital Power
+3.3V
FB1
470R
VDD
TP2
PWR_FLAG
C4
C5
C6
C7
100n
GND
MCU Analog Power
+3.3V
L1
10u
VDDA
TP3
PWR_FLAG
C8
C9
1u
100n
GND
Reviewer:
Author: I. Kajdan
Sheet:
File: rearbox.kicad_sch
Title: Rearbox
Size: A4
Date: 2023-11-17
Revision: 1.0
KiCad E.D.A. kicad 7.0.9
Page: 1/30









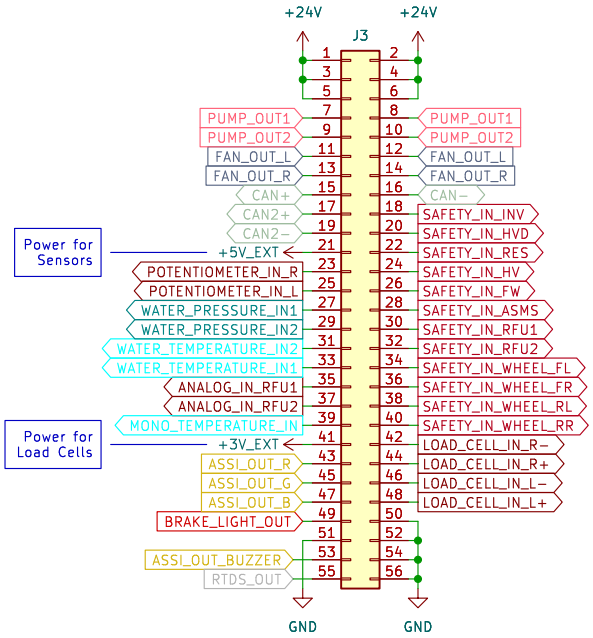
Reviewer:

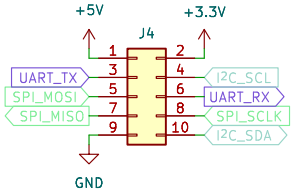
Author: I. Kajdan

Sheet: Power Supply
File: power_supply.kicad_sch

Title: Power Supply

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 2/30





Reviewer:

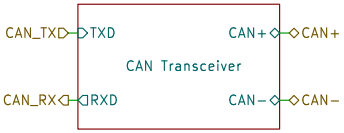
Author: I. Kajdan

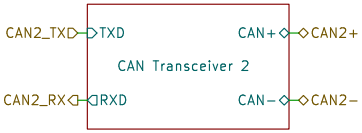
Sheet: Connectors

File: connectors.kicad_sch

Title: Connectors

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 3/30





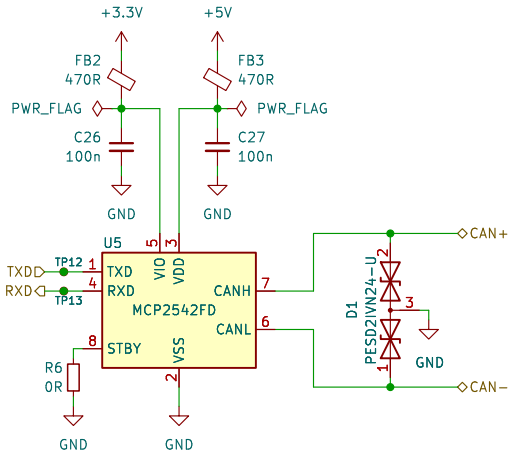
Reviewer:

Author: I. Kajdan

Sheet: CAN Transceivers
File: can_transceivers.kicad_sch

Title: CAN Transceivers

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 4/30



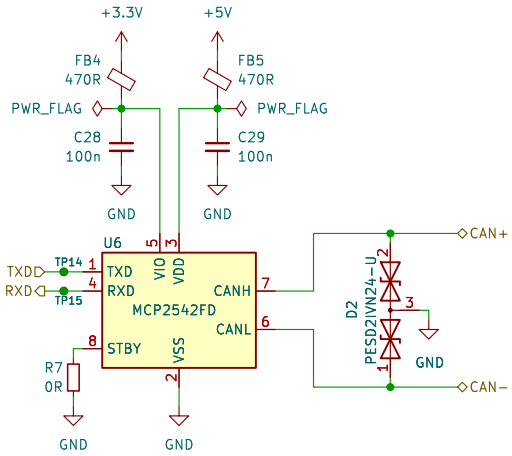
Reviewer:

Author: I. Kajdan

Sheet: CAN Transceiver
File: can_transceiver.kicad_sch

Title: CAN Transceiver

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 5/30



Reviewer:

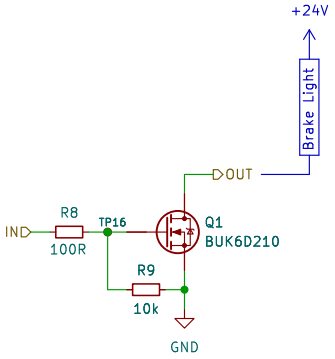
Author: I. Kajdan

Sheet: CAN Transceiver 2

File: can_transceiver.kicad_sch

Title: CAN Transceiver

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 6/30



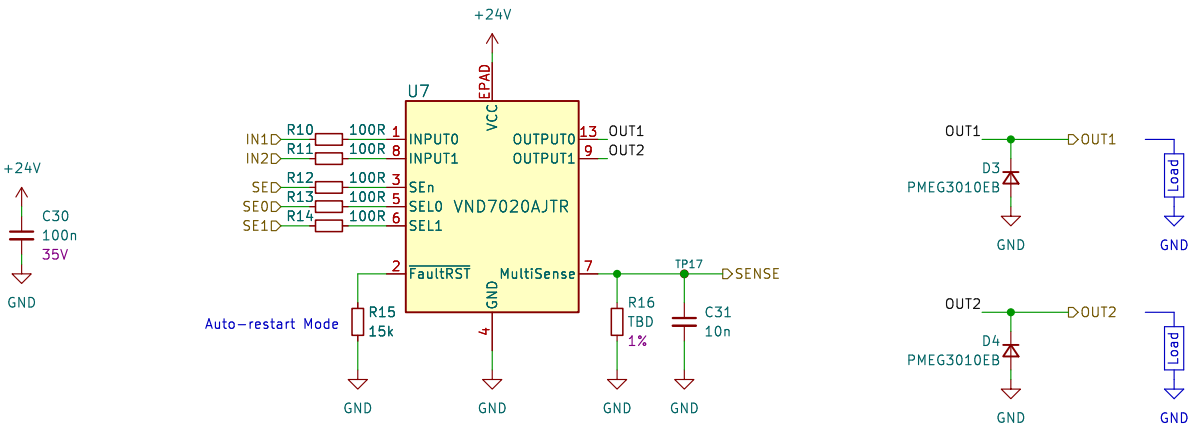
Reviewer:

Author: I. Kajdan

Sheet: Brake Light
File: brake_light.kicad_sch

Title: Brake Light

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 7/30



Reviewer:

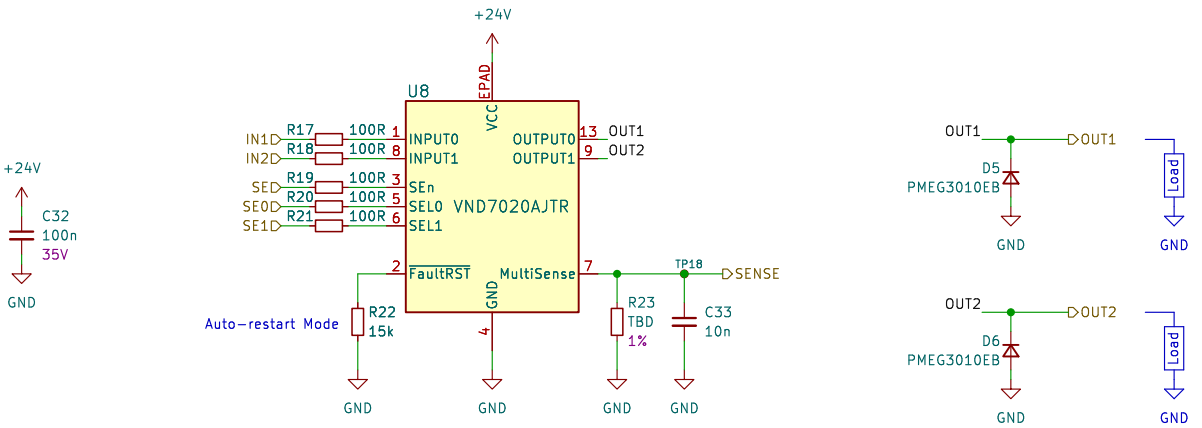
Author: I. Kajdan

Sheet: Fans

File: fused_output.kicad_sch

Title: Fans

Size: A4	Date: 2023−11−17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 8/30



Reviewer:

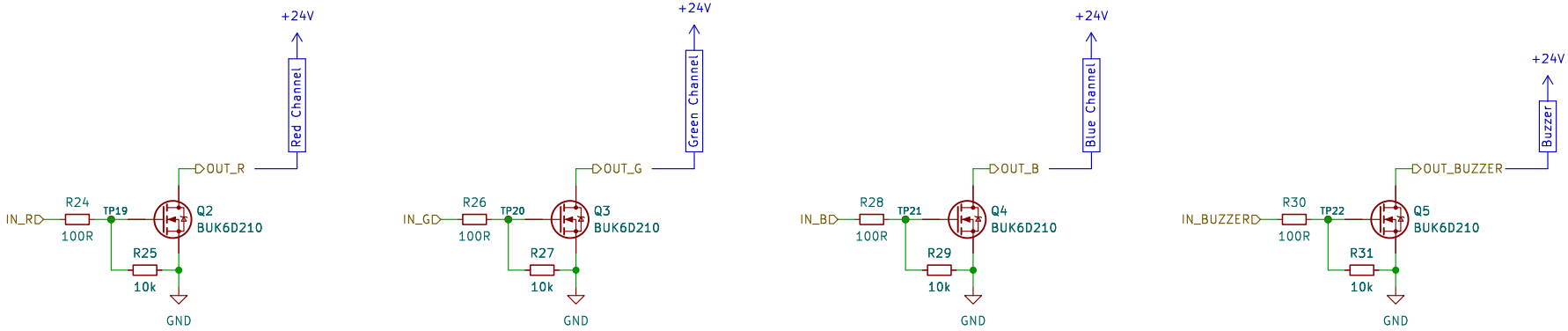
Author: I. Kajdan

Sheet: Pumps

File: fused_output.kicad_sch

Title: Fans

Size: A4	Date: 2023−11−17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 9/30



Reviewer:

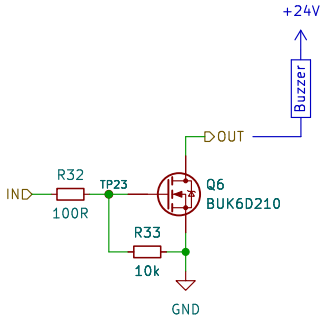
Author: I. Kajdan

Sheet: ASSI

File: assi.kicad_sch

Title: Autonomous System Status Indicator

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 10/30



Reviewer:

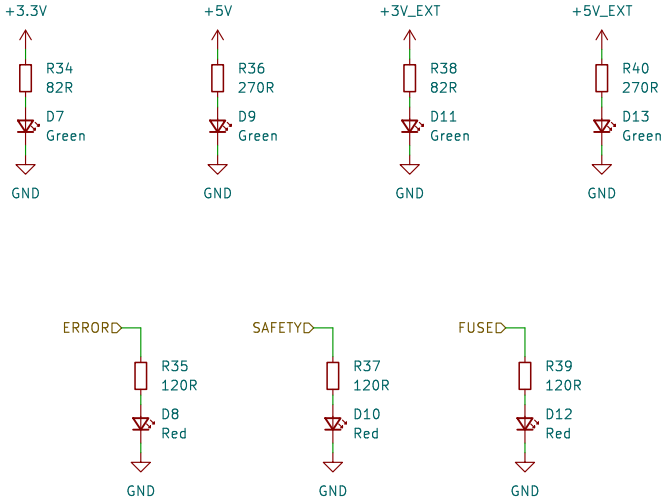
Author: I. Kajdan

Sheet: RTDS

File: ready_to_drive_sound.kicad_sch

Title: Ready to Drive Sound

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 11/30



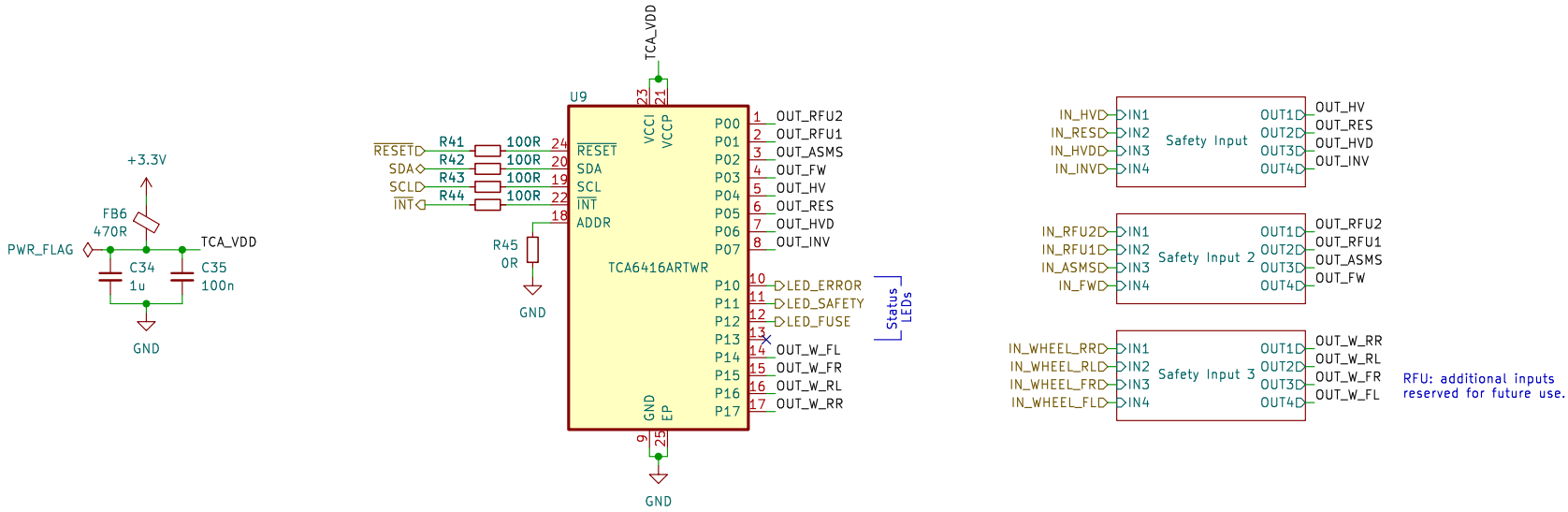
Reviewer:

Author: I. Kajdan

Sheet: LEDs
File: leds.kicad_sch

Title: LEDs

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 12/30



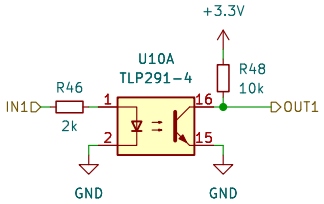
Reviewer:

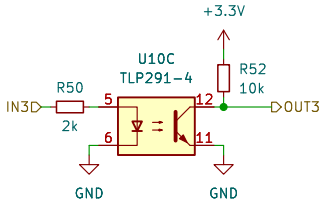
Author: I. Kajdan

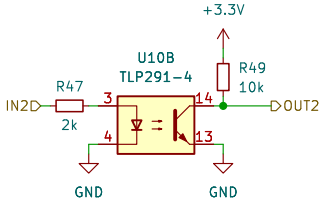
Sheet: Safety Inputs
File: safety_inputs.kicad_sch

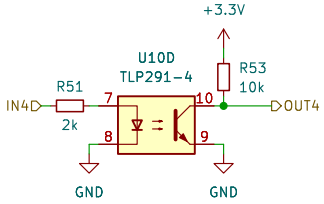
Title: Safety Inputs

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 13/30









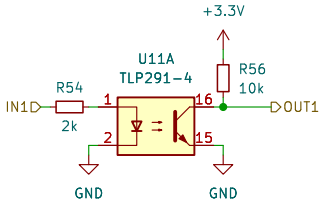
Reviewer:

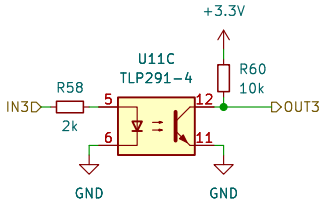
Author: I. Kajdan

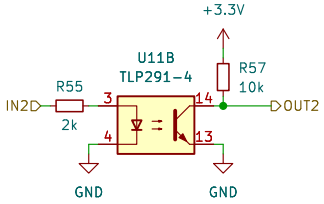
Sheet: Safety Input
File: safety_input.kicad_sch

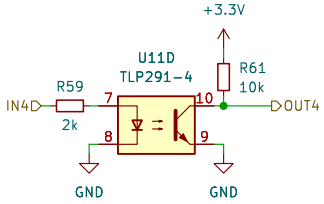
Title: Safety Input

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 14/30









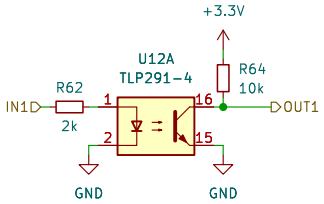
Reviewer:

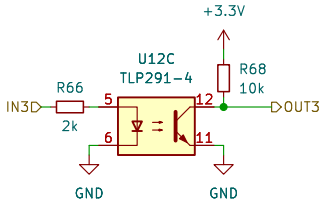
Author: I. Kajdan

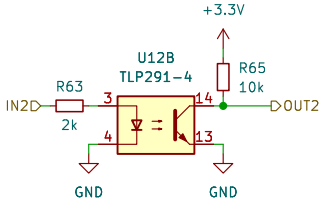
Sheet: Safety Input 2
File: safety_input.kicad_sch

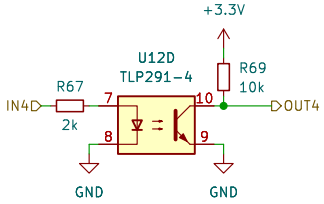
Title: Safety Input

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 15/30









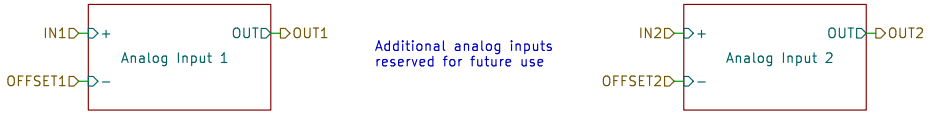
Reviewer:

Author: I. Kajdan

Sheet: Safety Input 3
File: safety_input.kicad_sch

Title: Safety Input

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 16/30



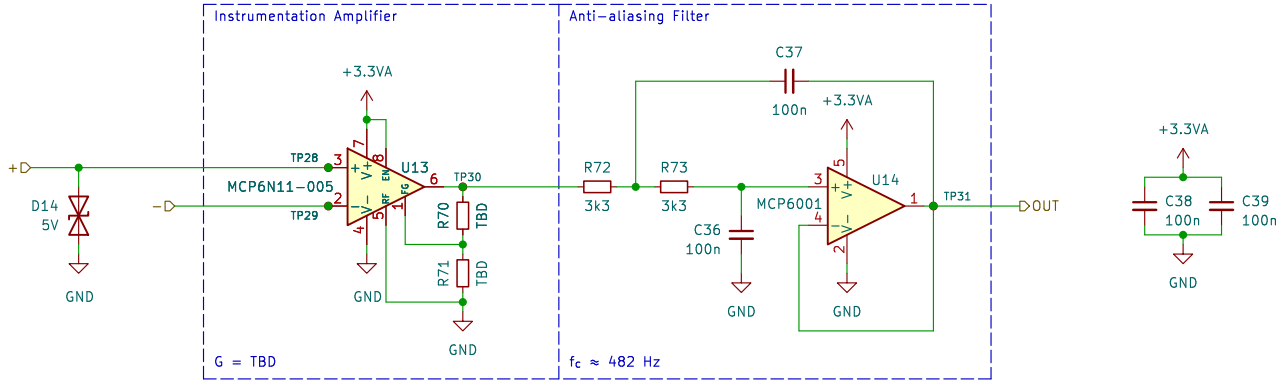
Reviewer:

Author: I. Kajdan

Sheet: Analog Inputs
File: analog_inputs.kicad_sch

Title: Analog Inputs

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 17/30



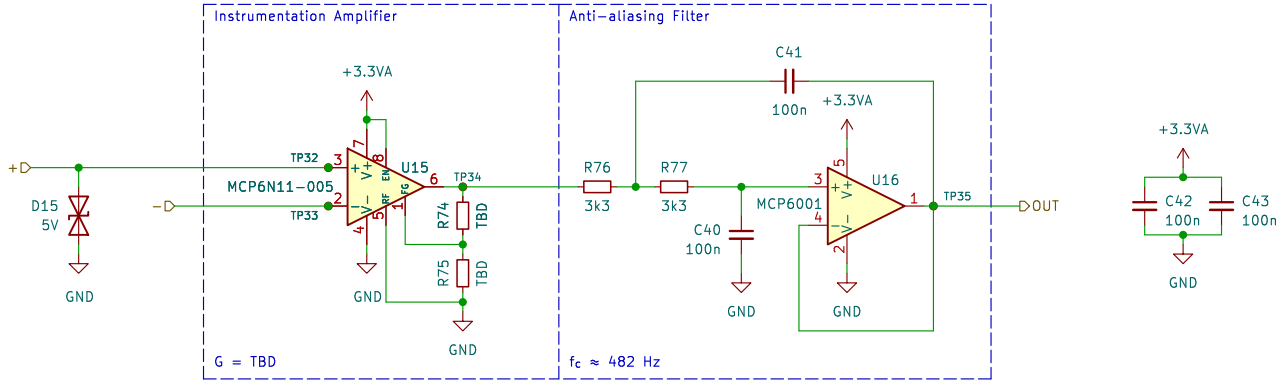
Reviewer:

Author: I. Kajdan

Sheet: Analog Input 1
File: analog_input.kicad_sch

Title: Analog Input

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 18/30



Reviewer:

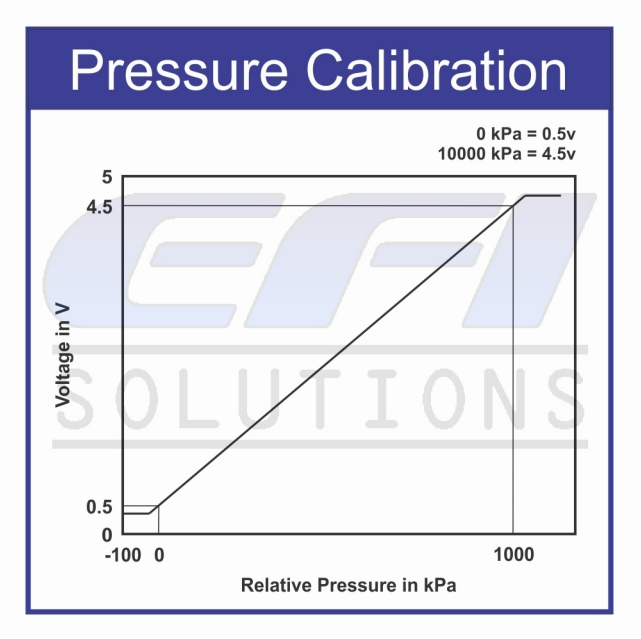
Author: I. Kajdan

Sheet: Analog Input 2

File: analog_input.kicad_sch

Title: Analog Input

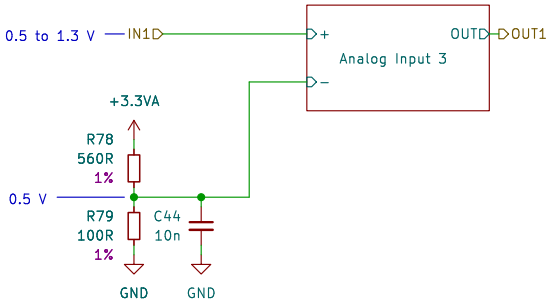
Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 19/30

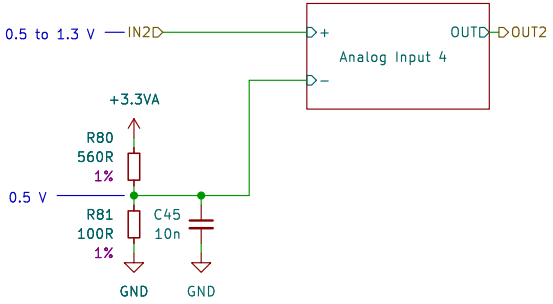


Sensor: Bosch 0 261 230 340
OEM ID: SH01-18-541
Range: 0 to 1000 kPa

https://www.efisolutions.com.au/bosch-fluid-pressure-and-temperature-sensor-pst-f1

Expected range: 0 to 200 kPa

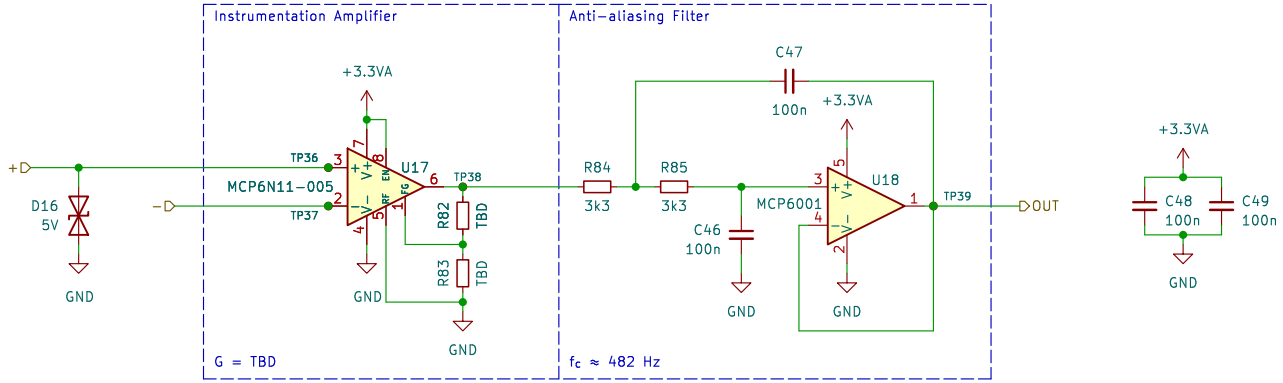




Reviewer:
Author: I. Kajdan
Sheet: Water Pressure Sensors
File: water_pressure_sensors.kicad_sch

Title: Water Pressure Sensors

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 20/30



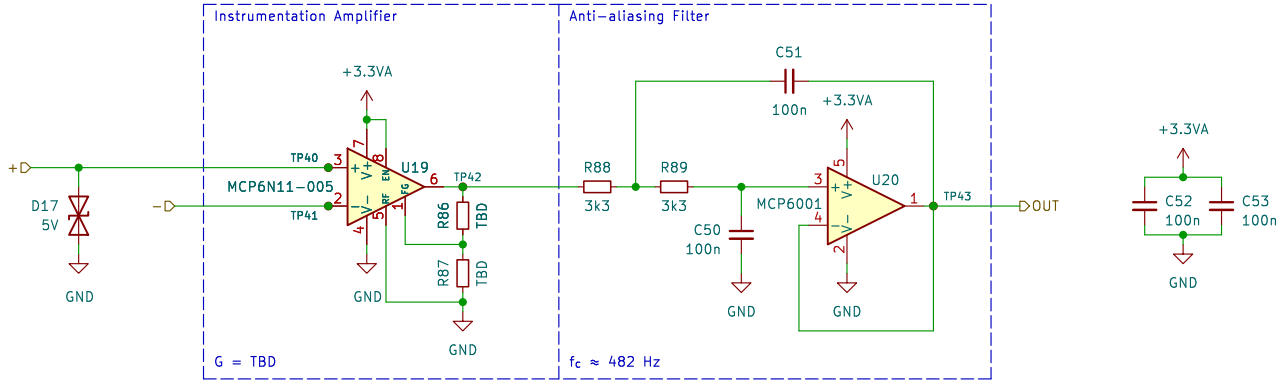
Reviewer:

Author: I. Kajdan

Sheet: Analog Input 3
File: analog_input.kicad_sch

Title: Analog Input

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 21/30



Reviewer:

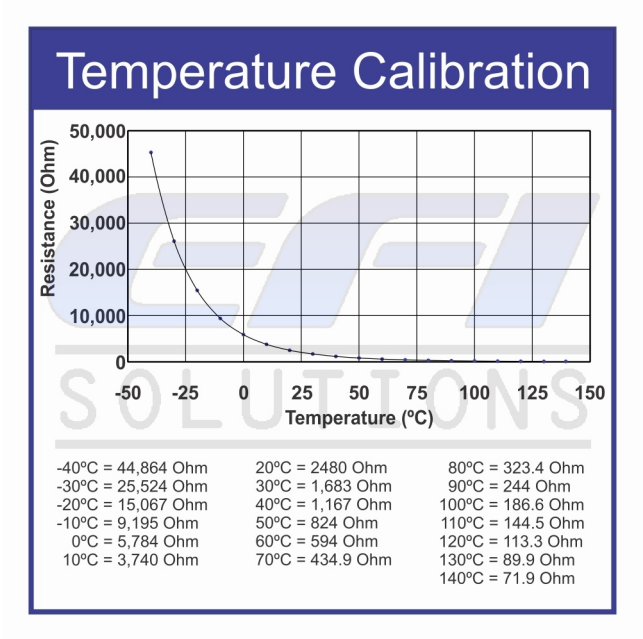
Author: I. Kajdan

Sheet: Analog Input 4

File: analog_input.kicad_sch

Title: Analog Input

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 22/30



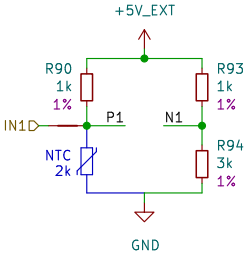
Sensor: Bosch 0 261 230 340
OEM ID: SH01-18-541
Range: -40 °C to 140 °C

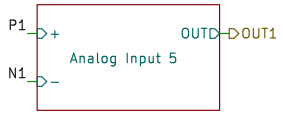
https://www.efisolutions.com.au/bosch-fluid-pressure-and-temperature-sensor-pst-f1

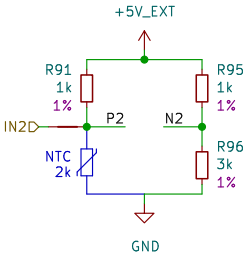
Resistance range:
2480 to 435 Ω
(20 to 70 °C)

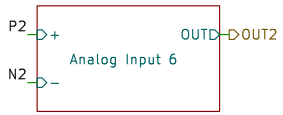
Optimum value of the upper
resistor in the divider:
R = sqrt(2480 * 435) ≈ 1 kΩ

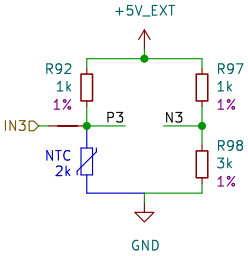
Output range:
0.237 V to 1.867 V

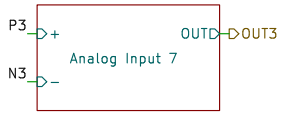










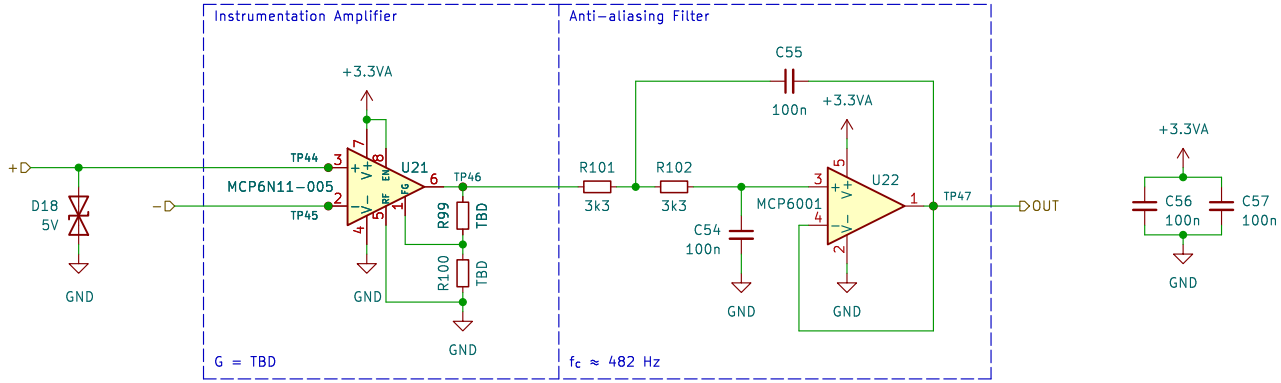


Reviewer:
Author: I. Kajdan

Sheet: Temperature Sensors
File: temperature_sensors.kicad_sch

Title: Temperature Sensors

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 23/30



Reviewer:

Author: I. Kajdan

Sheet: Analog Input 5
File: analog_input.kicad_sch

Title: Analog Input

Size: A4	Date: 2023-11-17	**Revision: 1.0**
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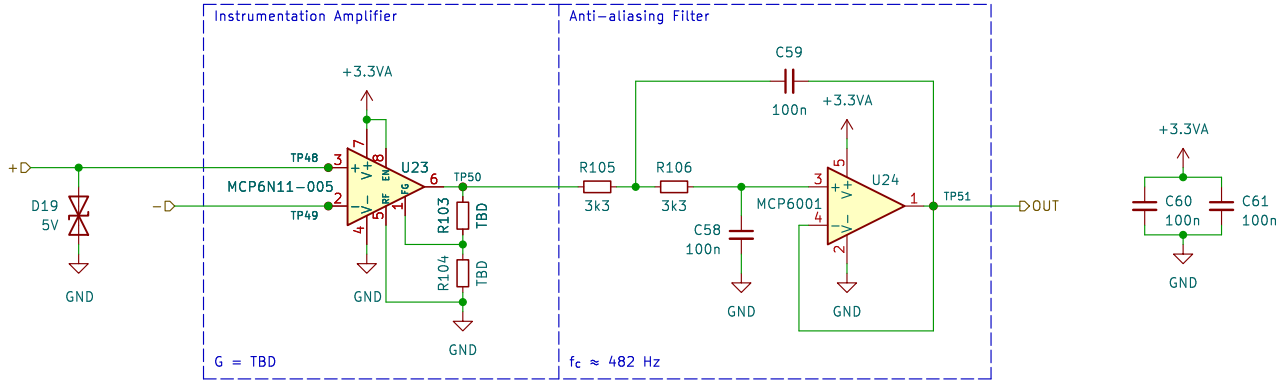


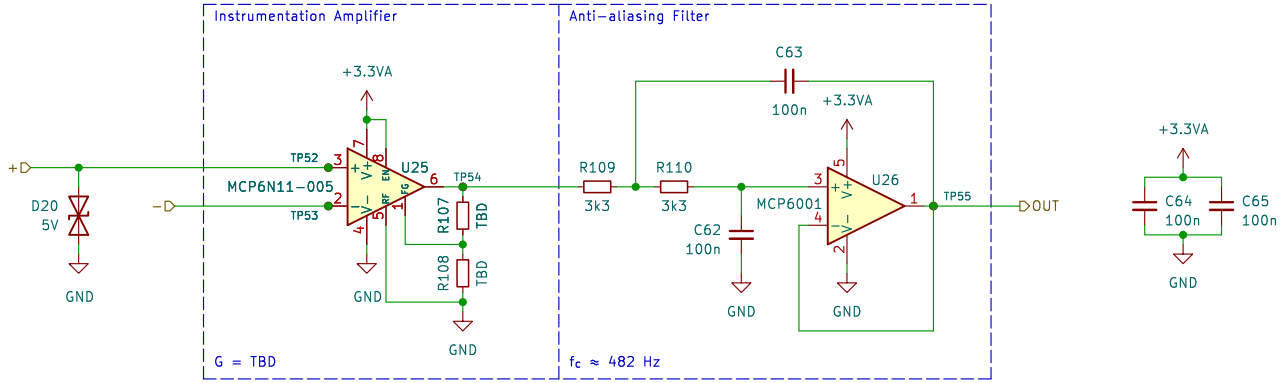
Reviewer:

Author: I. Kajdan

Sheet: Analog Input 6
File: analog_input.kicad_sch

Title: Analog Input

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 25/30



Reviewer:

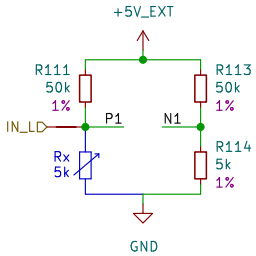
Author: I. Kajdan

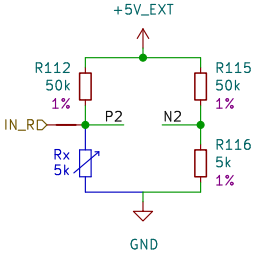
Sheet: Analog Input 7

File: analog_input.kicad_sch

Title: Analog Input

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 26/30





Reviewer:

Author: I. Kajdan

Sheet: Suspension Potentiometers
File: suspension_potentiometers.kicad_sch

Title: Suspension Potentiometers

Size: A4	Date: 2023-11-17	**Revision: 1.0**
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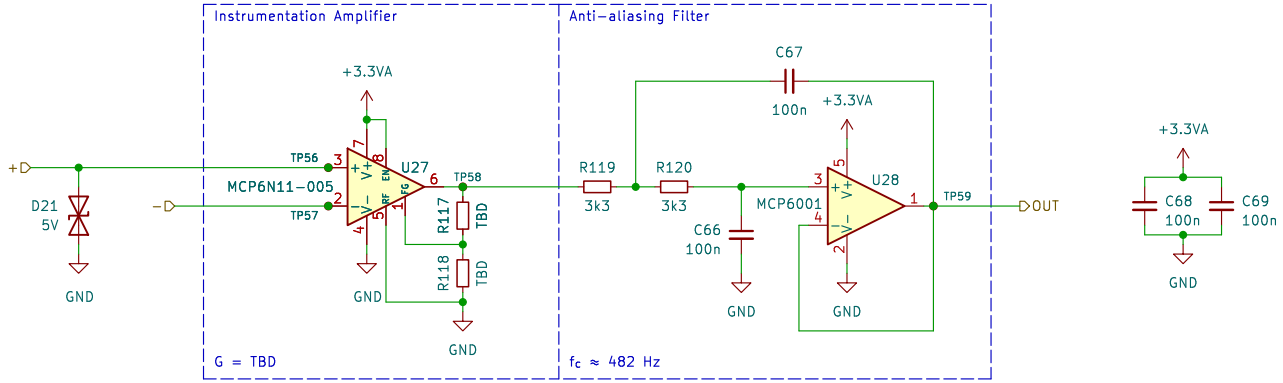

Reviewer:

Author: I. Kajdan

Sheet: Analog Input 8

File: analog_input.kicad_sch

Title: Analog Input

Size: A4	Date: 2023-11-17	**Revision: 1.0**
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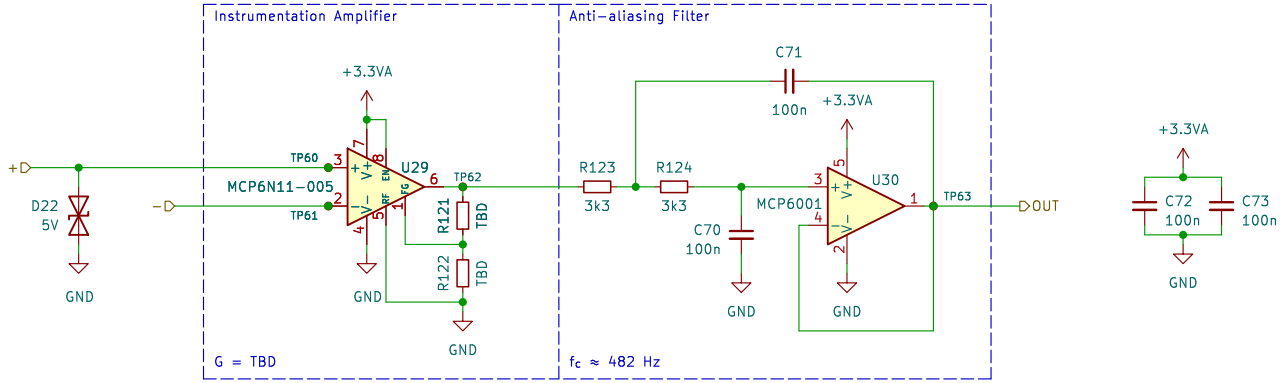

Reviewer:

Author: I. Kajdan

Sheet: Analog Input 9

File: analog_input.kicad_sch

Title: Analog Input

Size: A4	Date: 2023-11-17	**Revision: 1.0**
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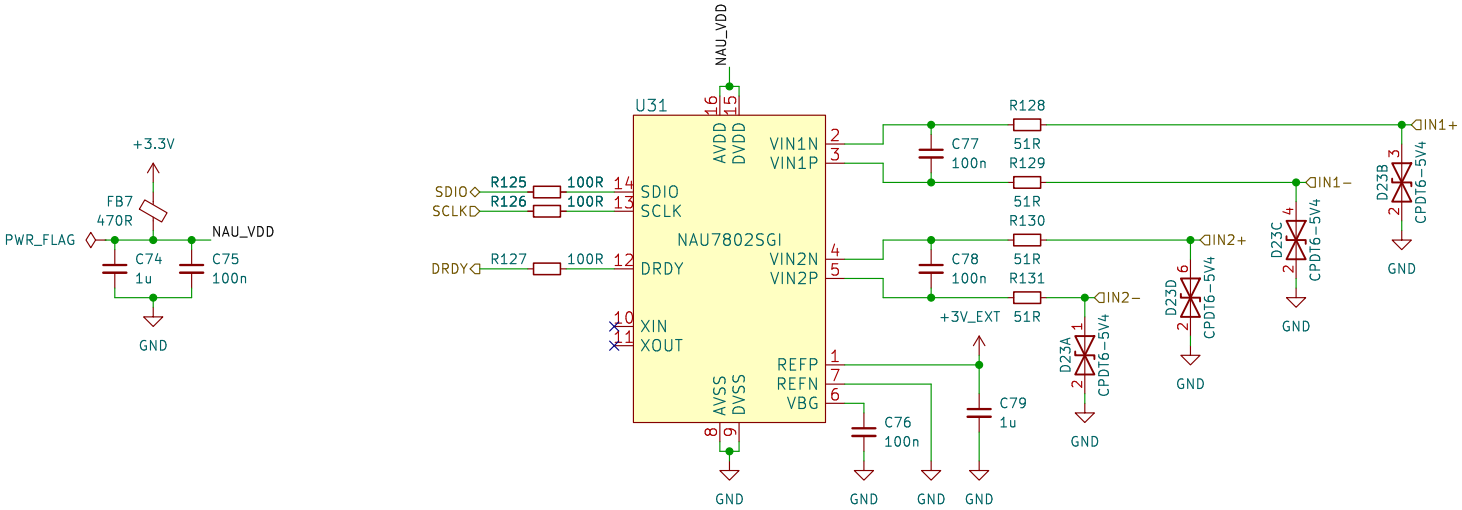

Reviewer:

Author: I. Kajdan

Sheet: Suspension Load Cells
File: suspension_load_cells.kicad_sch

Title: Suspension Load Cells

Size: A4	Date: 2023-11-17	**Revision: 1.0**
KiCad E.D.A. kicad 7.0.9		Page: 30/30