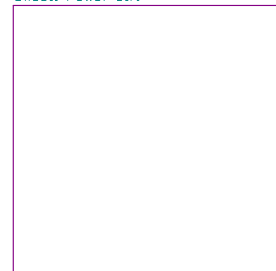
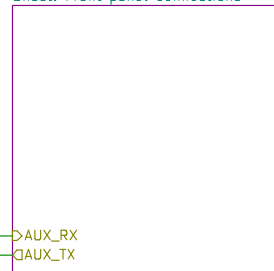


Sheet: Power ctrl



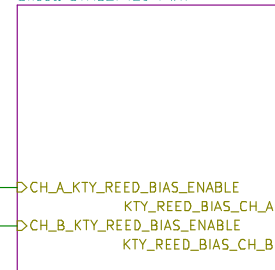
File: power.sch

Sheet: Front panel connections



File: front_panel_conn.sch

Sheet: STM32F429 PWR



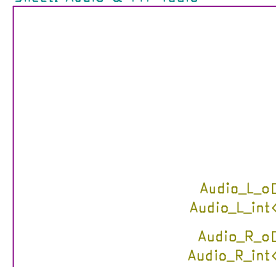
File: mcu_2.sch

I2C-addresses (on I2C1)
TMP100 (temperature sensors) :
1001000 (Front panel, outside left)
1001010 (FP, outside right)
1001100 (FP, inside left)
1001101 (FP, inside middle)
1001110 (FP, inside right)
1001001 (Main board #1)
1001011 (MB #2)
1001111 (MB #3)

INA226 (power-channel current sensors) :
1000000 (ch A, heater 1)
1000001 (ch A, heater 2)
1000100 (ch B, heater 1)
1000101 (ch B, heater 2)

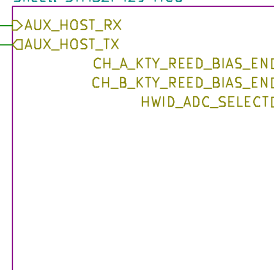
SI4735 (FM-radio rx) :
0010001 (if SEN pulled low [default])
1100011 (alternative, if SEN pulled high)

Sheet: Audio & FM-radio



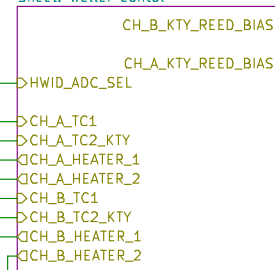
File: audio_fmradio.sch

Sheet: STM32F429 MCU



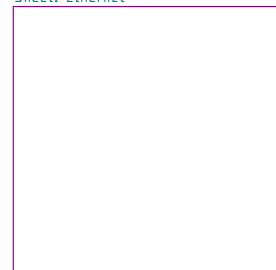
File: mcu_1.sch

Sheet: Weller control



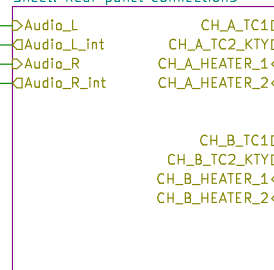
File: Weller_ctrl.sch

Sheet: Ethernet



File: ethernet.sch

Sheet: Rear panel connections



File: rear_panel_conn.sch

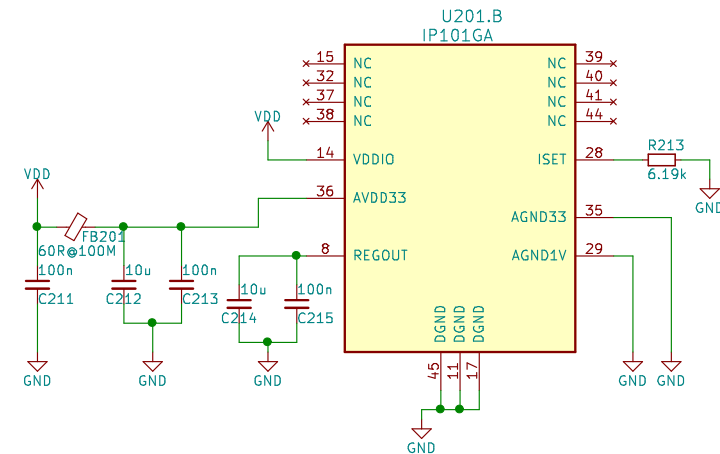
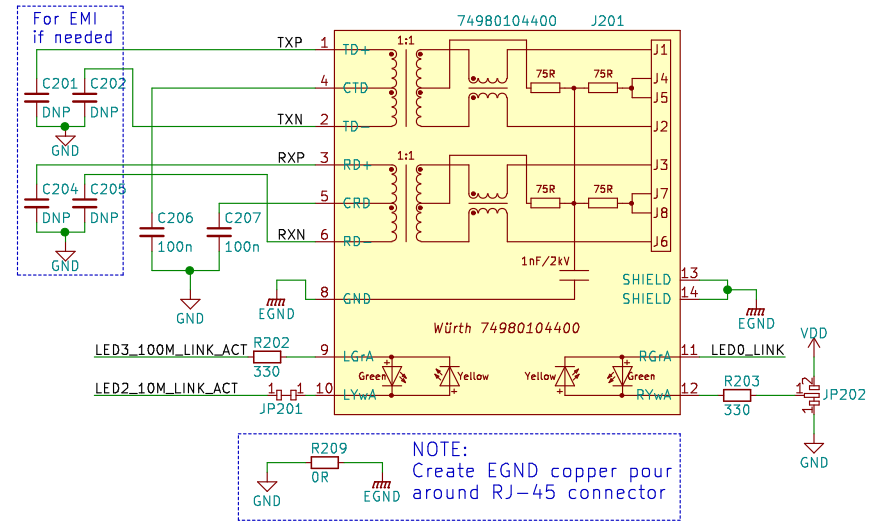
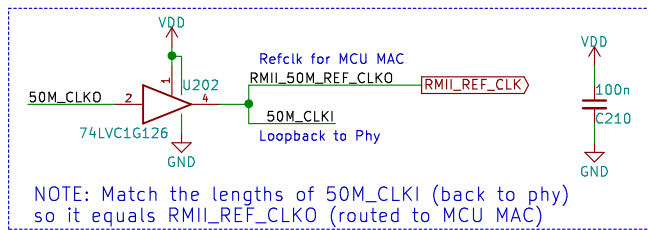
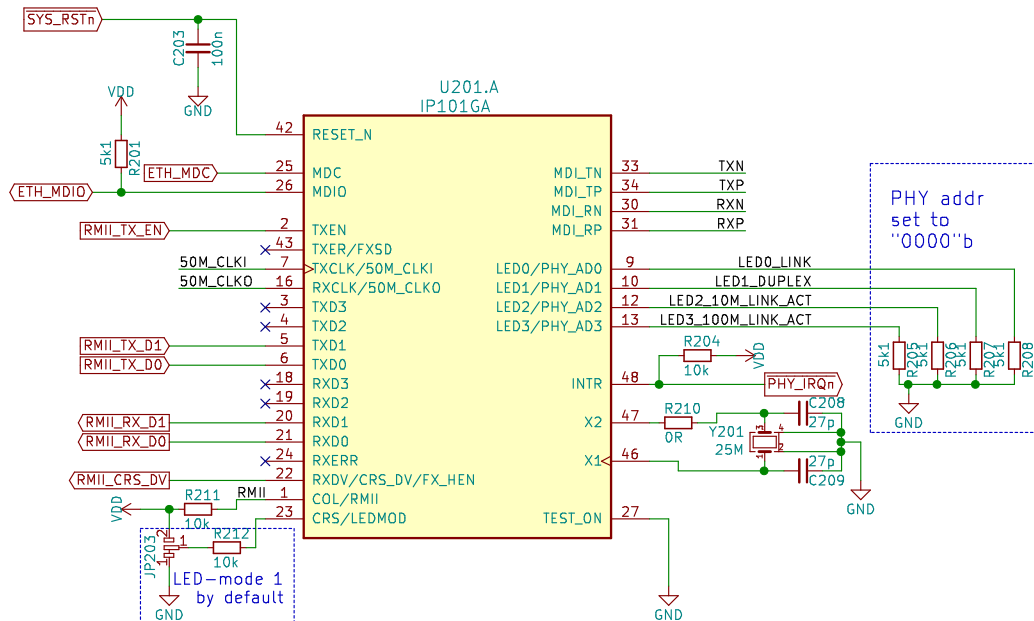
SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /
File: solderstn_mb.sch

Title: DIY Soldering station, top level

Size: A4 Date: 2020-04-26
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1

Rev: R0.1
Id: 1/22



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Ethernet/

File: ethernet.sch

Title: Ethernet PHY & connector

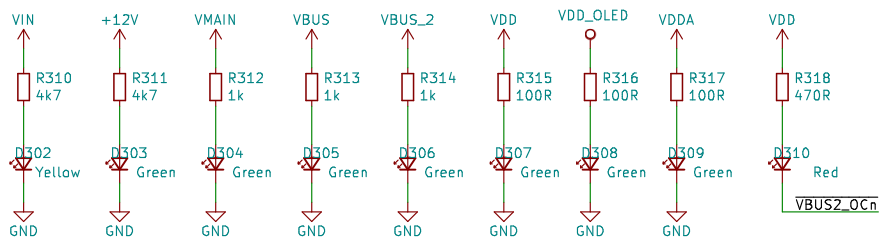
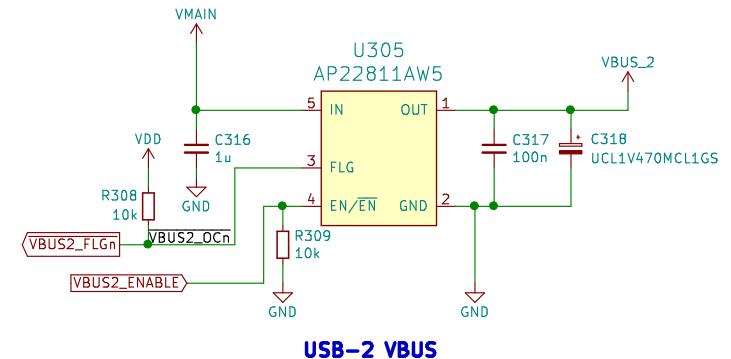
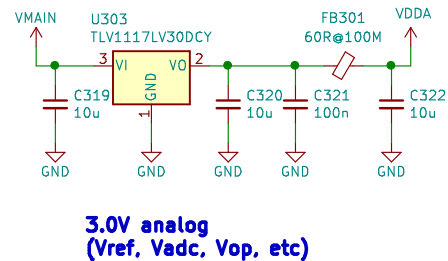
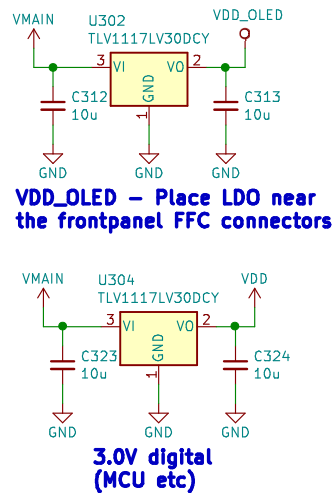
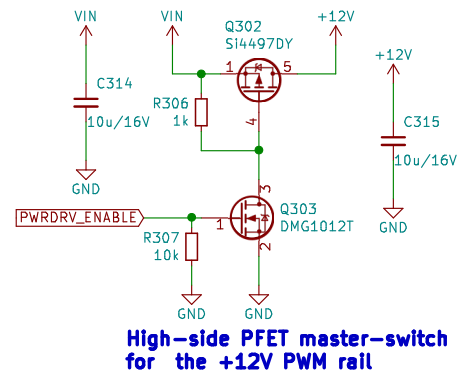
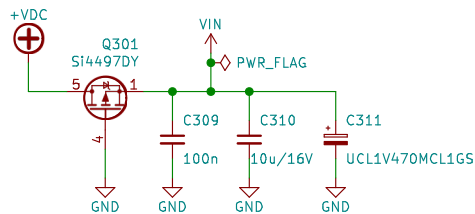
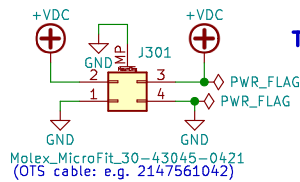
Size: A4

Date: 2020-05-03

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Rev: R0.1

Id: 2/22



Pluto DC/DC BUCK
Values TBD for 12V -> 5V

SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Power ctrl/

File: power.sch

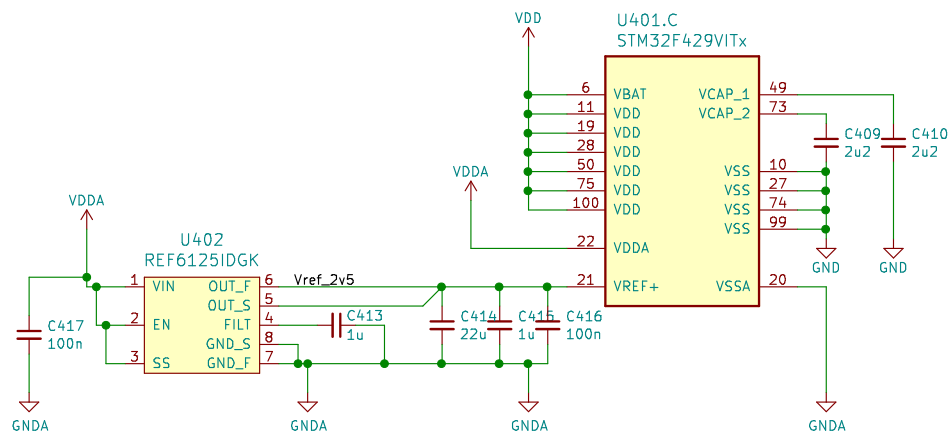
Title: DC/DC Buck, LDOs & master load-switches

Size: A4 Date: 2020-05-08

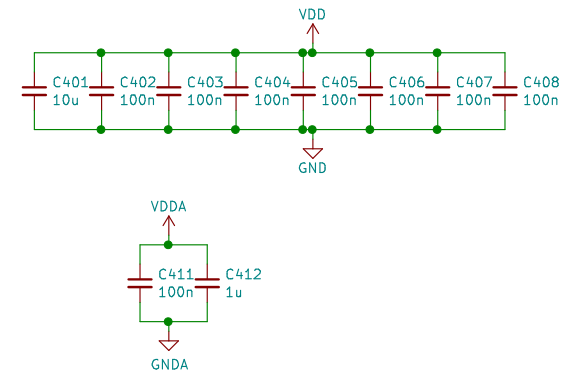
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1

Rev: R0.1

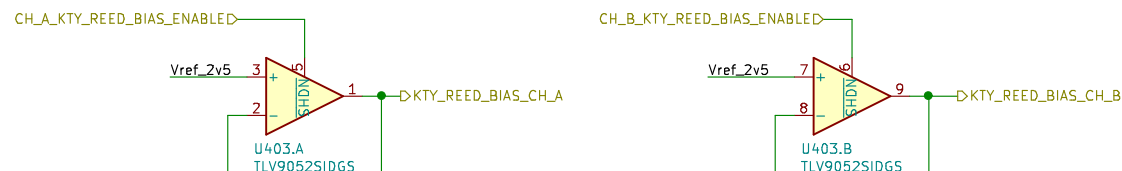
Id: 3/22



Precisin Vref. Place close to MCU. See REF6125 ds for layout suggestions.



MCU decoupling – place close to MCU power pins



Switchable Vref for biasing KTY sensors (for cold-junction compensation), one per channel. The KTY's can then be measured through the ordinary TC amps.

SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /STM32F429 PWR/

File: mcu_2.sch

Title: STM32F429 MCU power, decoupling, Vref

Size: A4

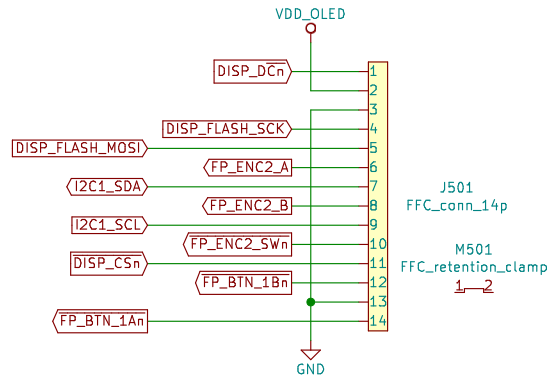
Date: 2020-04-26

Rev: R0.1

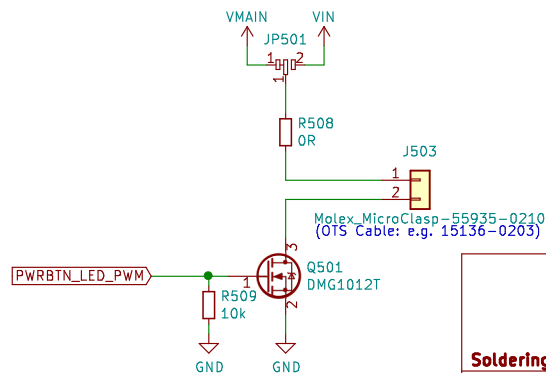
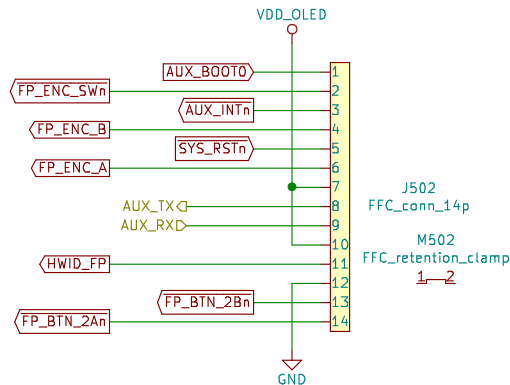
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1

Id: 4/22

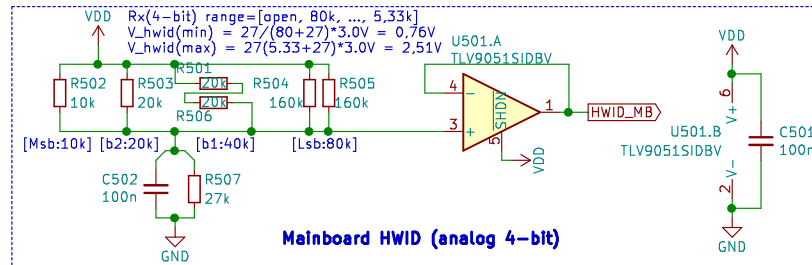
Place vDD_OLED LDO close to FFC connectors



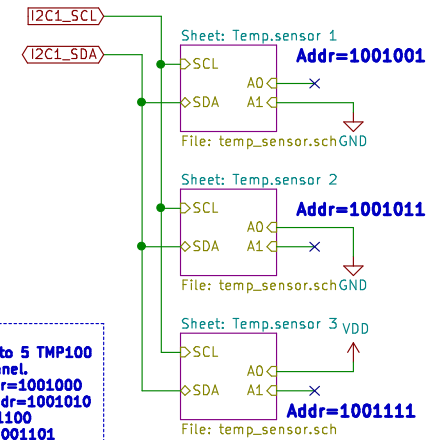
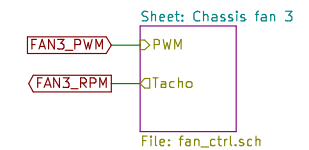
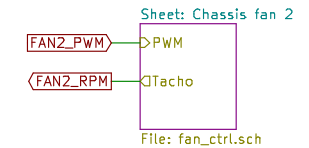
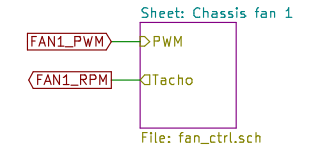
The left-side of front panel supports either an on/off Power-button OR optionally a 2nd rotary encoder. HWID_FP should be used to indicate which option is chosen



FancyBtn LED connector
(PWM ctrl low-side: 5V/12V selectable V+)



Mainboard HWID (analog 4-bit)



Ambient temperature sensors (TMP100)

Note:
There're additional up-to 5 TMP100 sensors on the front panel.
Display-side, left : addr=1001000
Display-side, right : addr=1001010
Inside, left : addr=1001100
Inside, middle : addr=1001101
Inside, right: addr=1001110

SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/

File: front_panel_conn.sch

Title: Front-side and internal connectors

Size: A4 Date: 2020-08-03

KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1

Rev: R0.1

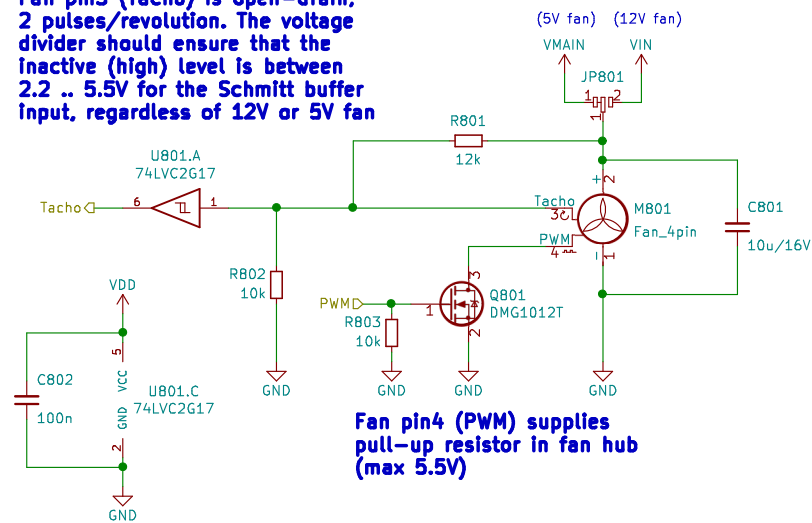
Id: 5/22



Rev: R0.1
Id: 6/22

Id: 7/22

Fan pin3 (Tacho) is open-drain, 2 pulses/revolution. The voltage divider should ensure that the inactive (high) level is between 2.2 .. 5.5V for the Schmitt buffer input, regardless of 12V or 5V fan



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/Chassis fan 3/

File: fan_ctrl.sch

Title: Fan controller

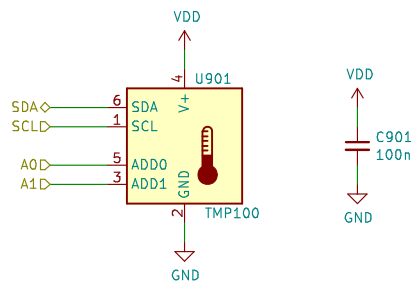
Size: A4

Date: 2020-08-09

Rev: R0.1

KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1

Id: 8/22



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/Temp.sensor 1/
File: temp_sensor.sch

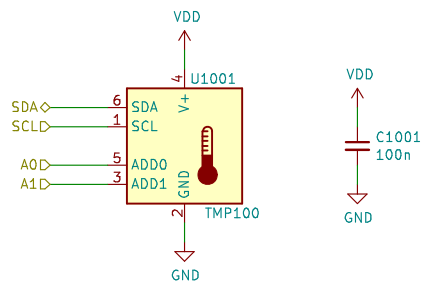
Title:

Size: A4
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1

Date:

Rev: R0.1

Id: 9/22

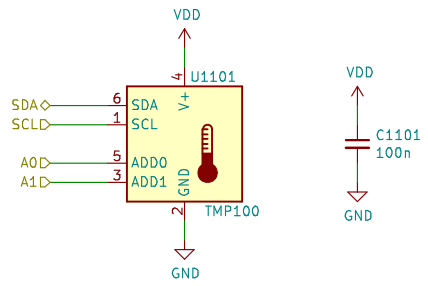


SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/Temp.sensor 2/
File: temp_sensor.sch

Title:

Size: A4	Date:	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1		Id: 10/22



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Front panel connections/Temp.sensor 3/
File: temp_sensor.sch

Title:

Size: A4	Date:	Rev: R0.1
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1	Id: 11/22	

Notes:
RJ45 ethernet – located on ethernet page

Audiojack 3.5mm (sub-PCB)
DBGUART / SWD (dsub-9?)
FM-ant? (AM-ferrit extern..?)
USB1 (device)
USB2 (host)
Force Bootloader/rst
2x Amphenol Weller-jacks!

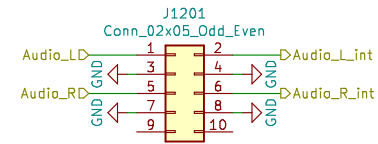
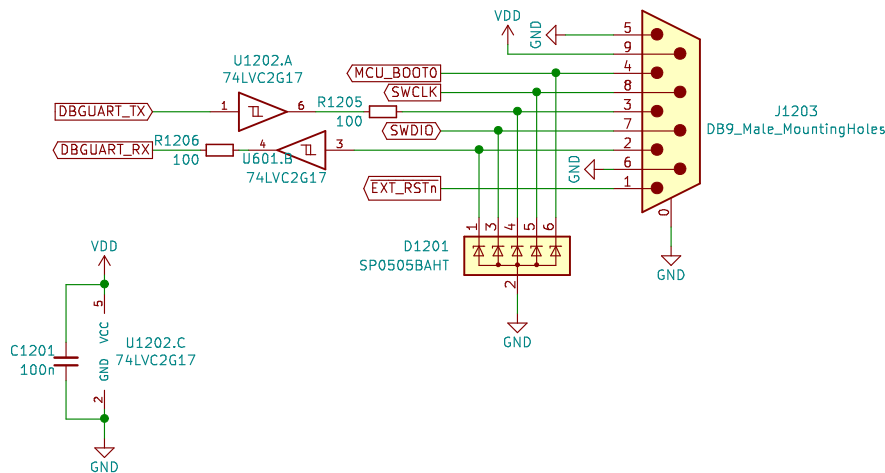
ToDo:

CH_A_HEATER_1D — 4x solderable quick-disconnect cable tabs (6.35x0.81), right-angle:
HT1 / GND / HT2 / GND

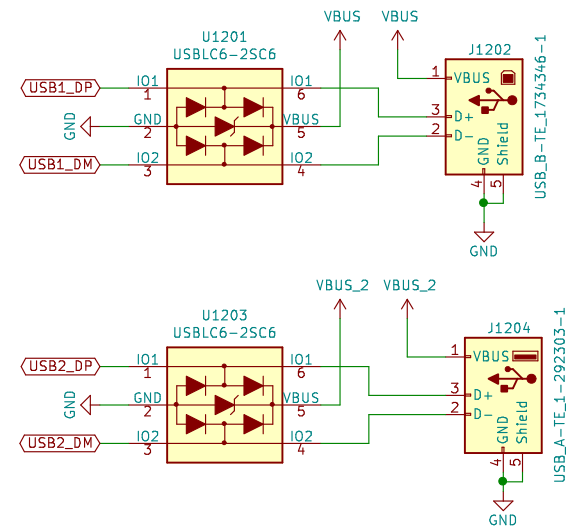
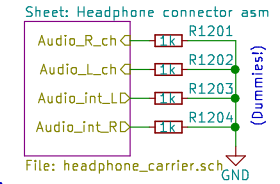
CH_A_TC1C — 5x1 or 4x1 pin picoblade/pico-clasp/micro-clasp..?
CH_A_TC2_KTYC — gnd/tc1_reed/gnd/tc2_kty/(ESD ref. pin 5?)

CH_B_HEATER_1D — 4x solderable quick-disconnect cable tabs (6.35x0.81), right-angle:
HT1 / GND / HT2 / GND

CH_B_TC1C — 5x1 or 4x1 pin picoblade/pico-clasp/micro-clasp..?
CH_B_TC2_KTYC — gnd/tc1_reed/gnd/tc2_kty/(ESD ref. pin 5?)



Headphone 3.5mm connector on a break-away sub-PCB.
Audio signals get routed out to the 3.5mm connector, through the plug-switches and optionally back to internal speakers conns if there's no plug inserted



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Rear panel connections/

File: rear_panel_conn.sch

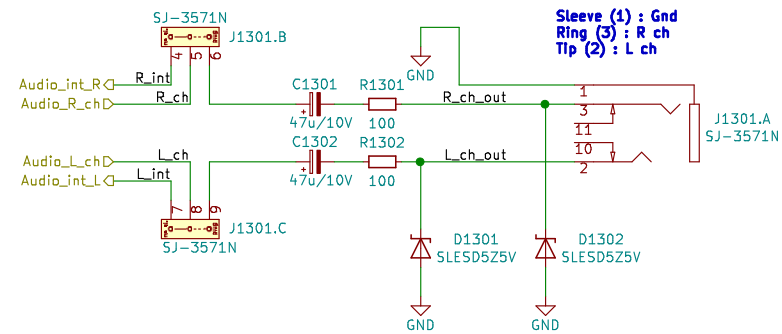
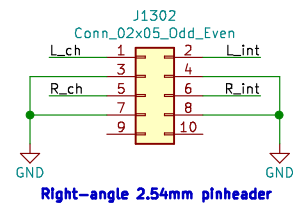
Title: Backside connectors

Size: A4 Date: 2020-08-14

KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1

Rev: R0.1

Id: 12/22

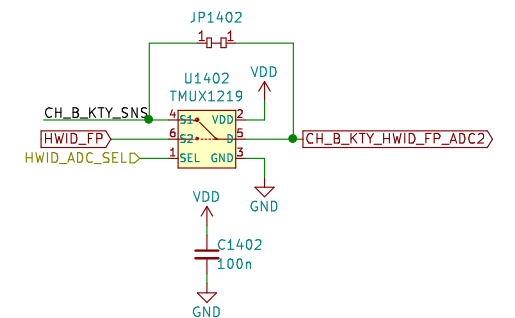
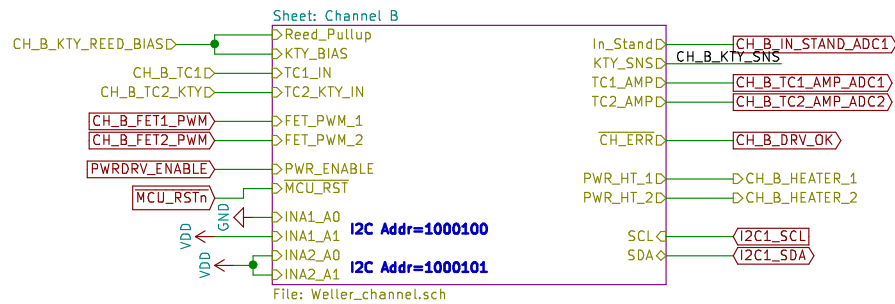
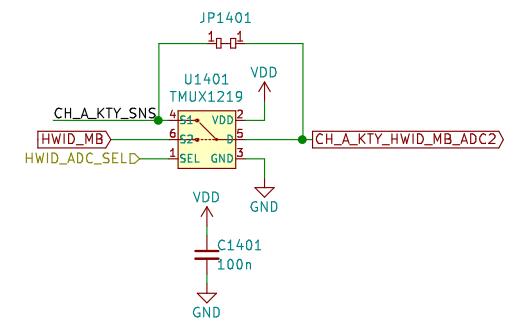
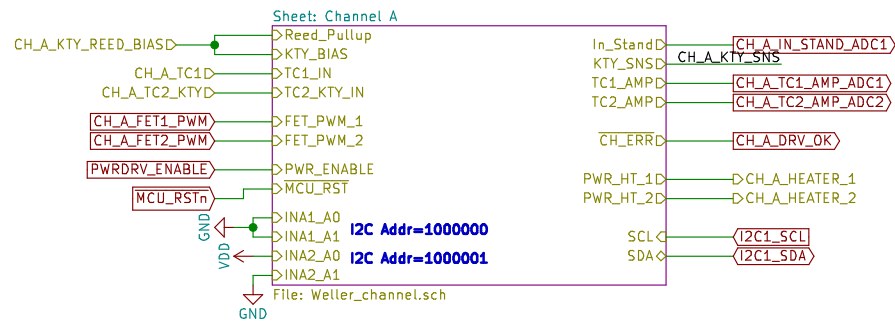


Sheet: /Rear panel connections/Headphone connector asm/
File: headphone_carrier.sch

Title: Rearpanel headphone assembly

Size: A4 Date: 2020-08-19
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1

Rev:
Id: 13/22



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller ctrlol/

File: Weller_ctrl.sch

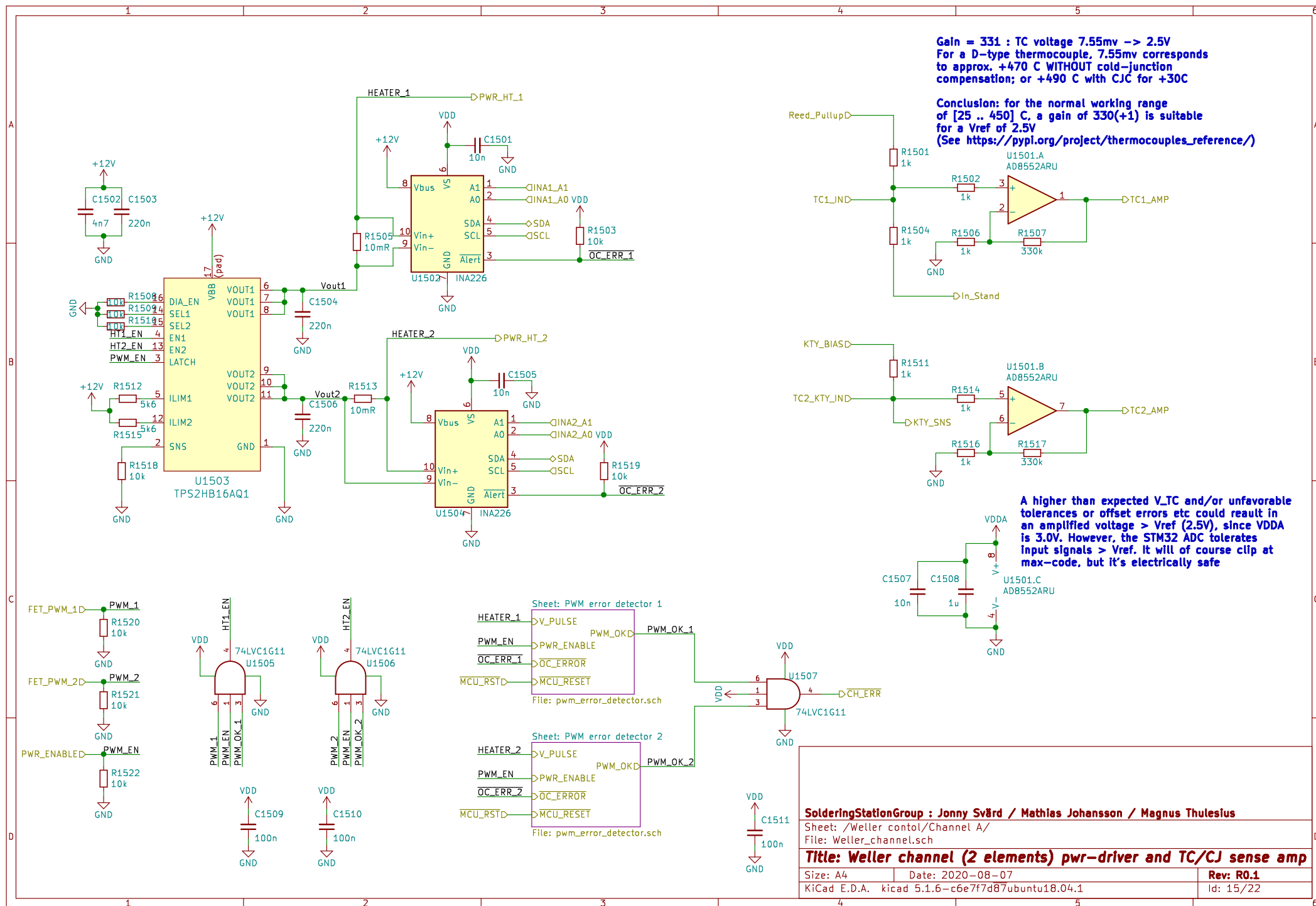
Title: Dual Weller WMRP or WMRT capable channels

Size: A4 Date: 2020-08-07

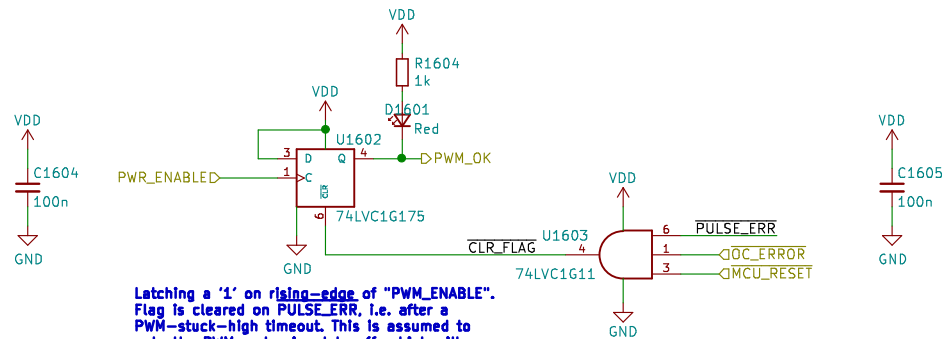
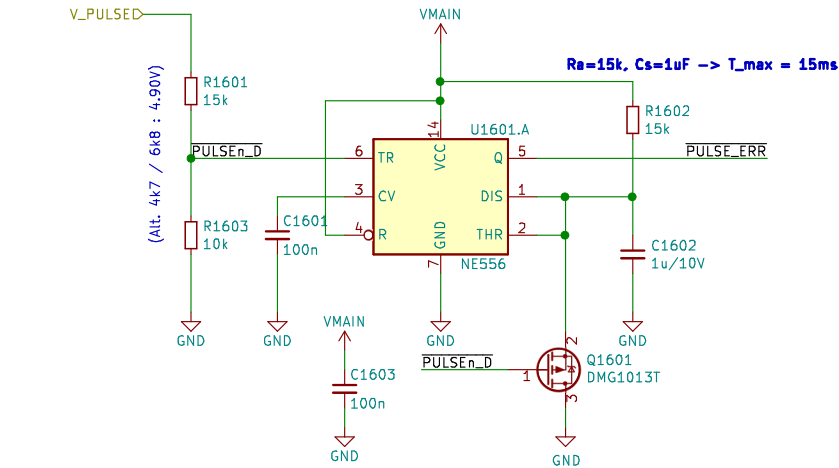
Rev: R0.1

KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1

Id: 14/22



12V PWM pulse-train for Heater



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller contol/Channel A/PWM error detector 1/

File: pwm_error_detector.sch

Title: HW PWM stuck-high detection with latched flag

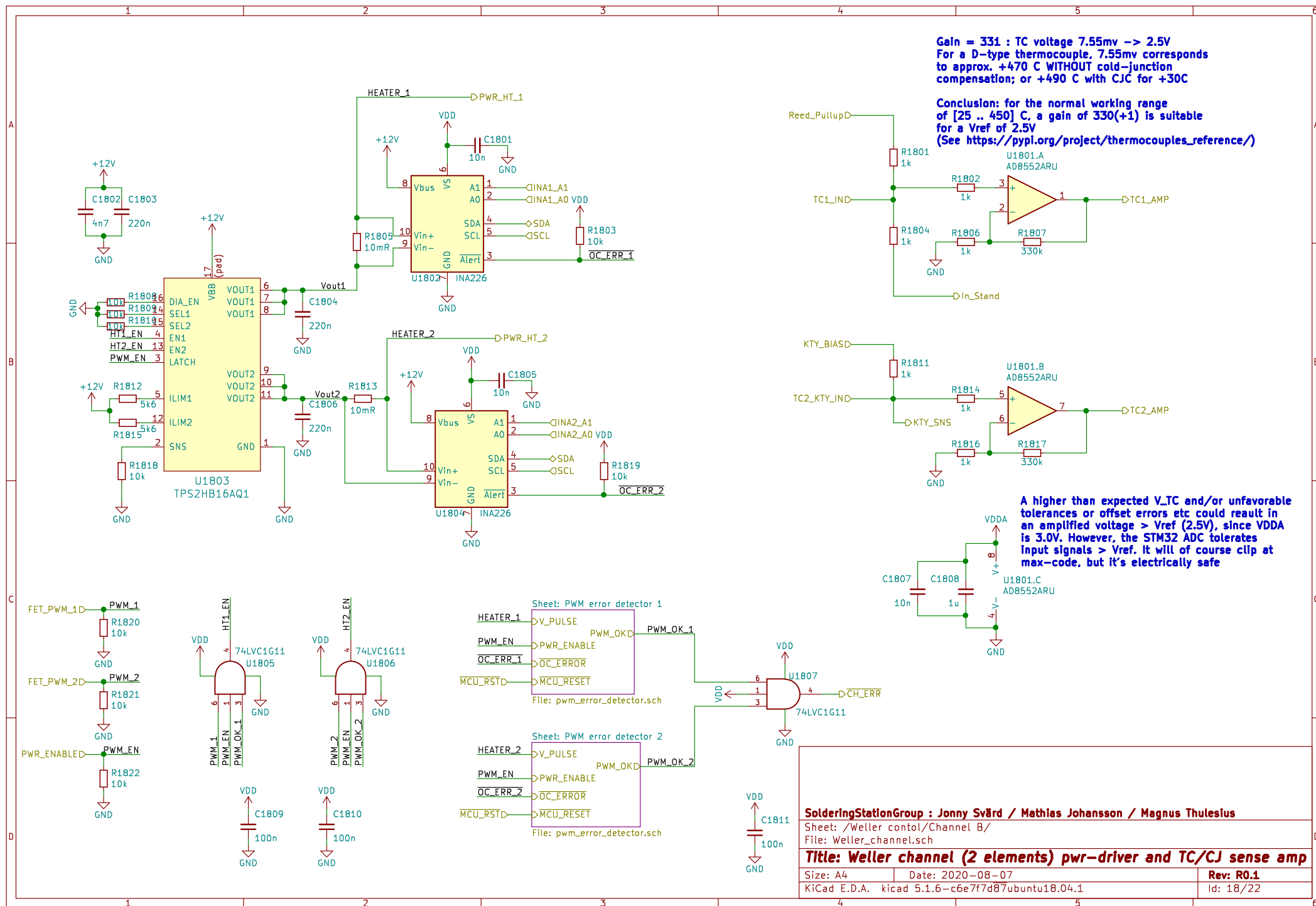
Size: A4

Date: 2020-08-12

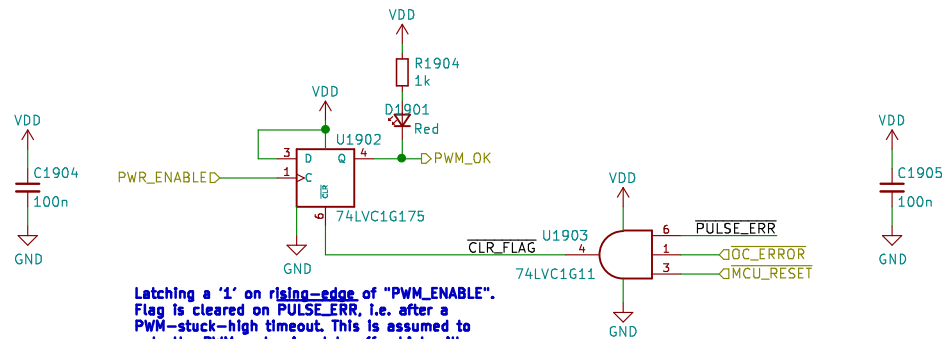
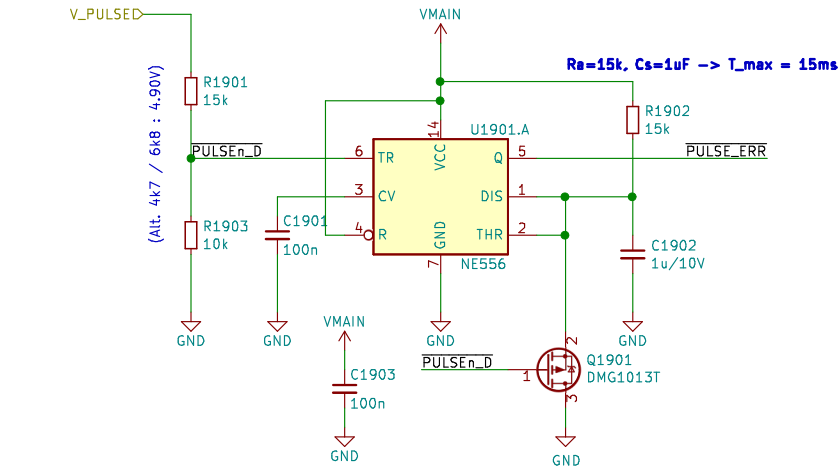
Rev: R0.1

KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1

Id: 16/22



12V PWM pulse-train for Heater



Latching a '1' on rising-edge of "PWM_ENABLE".
Flag is cleared on PULSE_ERR, i.e. after a PWM-stuck-high timeout. This is assumed to gate the PWM-pulse input to off, which will clear the PULSE_ERR from the 555, which will allow the D-flipflop to be re-enabled by a subsequent toggling 1->0->1 of "PWM_ENABLE"

SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller contol/Channel B/PWM error detector 1/

File: pwm_error_detector.sch

Title: HW PWM stuck-high detection with latched flag

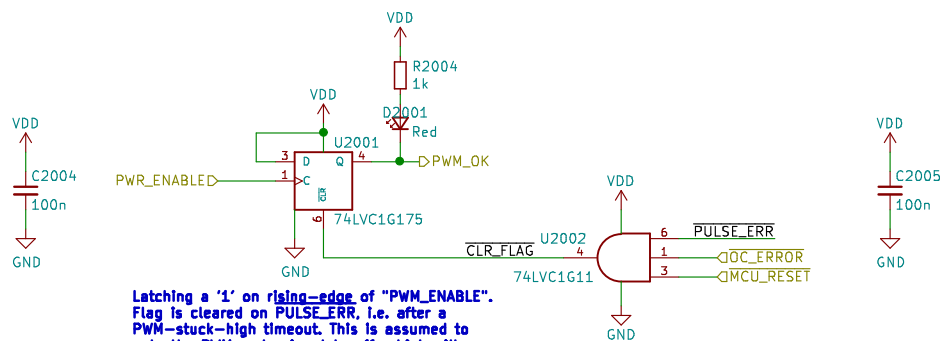
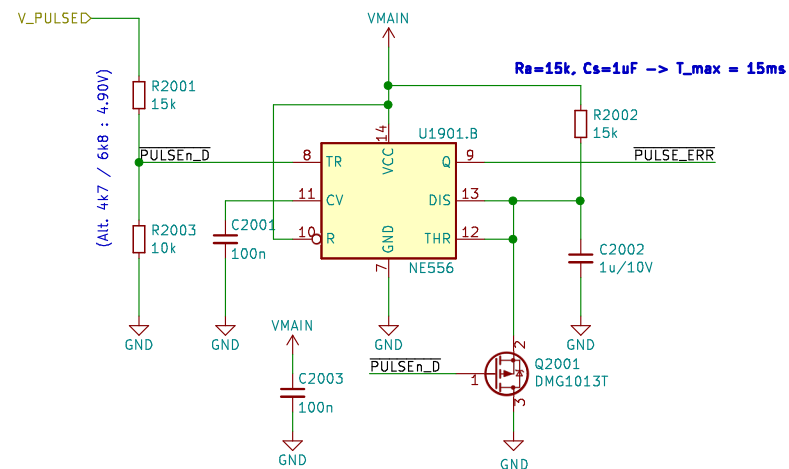
Size: A4

Date: 2020-08-12

Rev: R0.1

KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1

Id: 19/22



Latching a '1' on rising-edge of "PWM_ENABLE".
Flag is cleared on PULSE_ERR, i.e. after a PWM-stuck-high timeout. This is assumed to gate the PWM-pulse input to off, which will clear the PULSE_ERR from the 555, which will allow the D-flipflop to be re-enabled by a subsequent toggling 1->0->1 of "PWM_ENABLE"

SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius

Sheet: /Weller contol/Channel B/PWM error detector 2/

File: pwm_error_detector.sch

Title: HW PWM stuck—high detection with latched flag

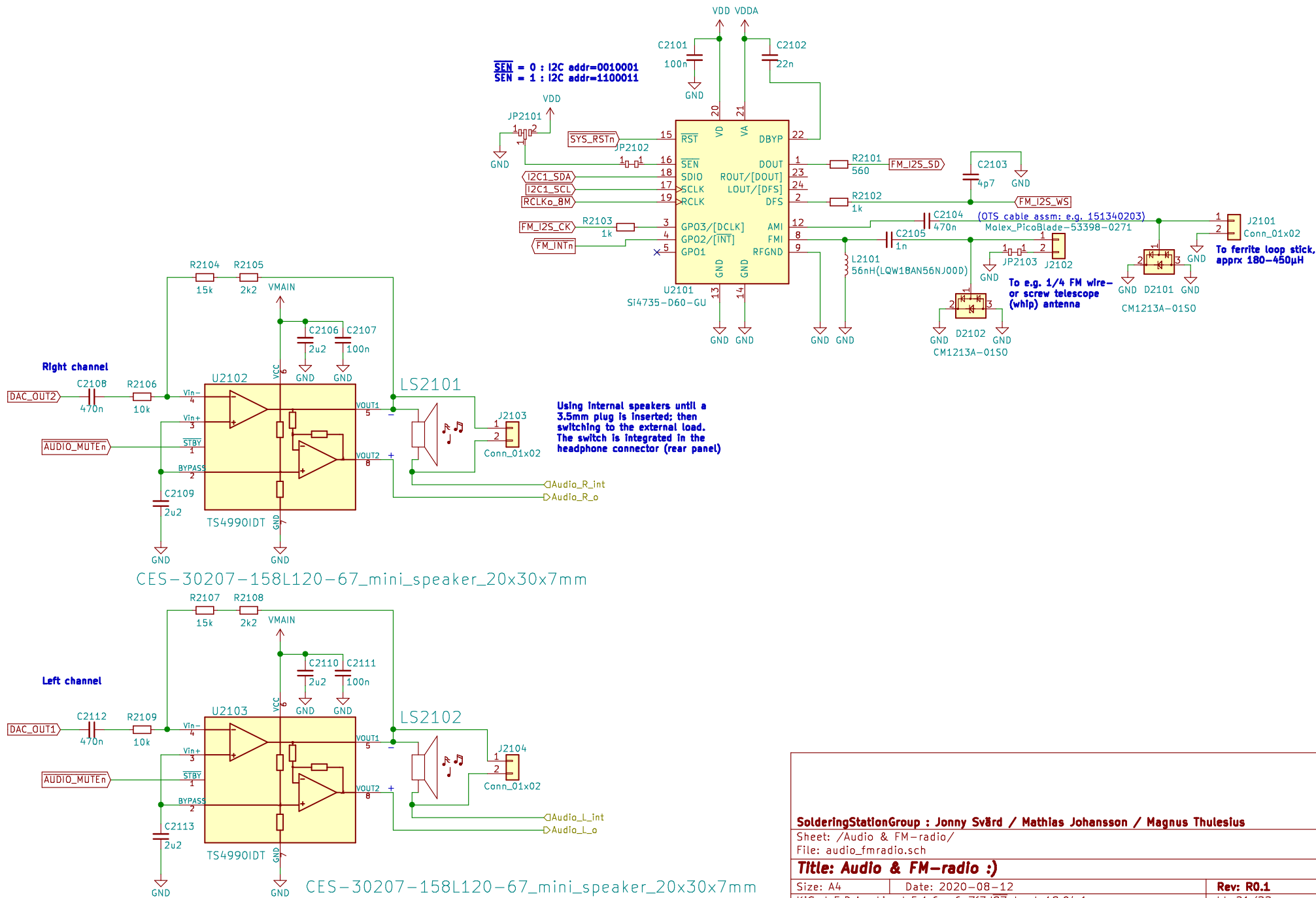
Size: A4

Date: 2020-08-12

Rev: R0.1

KiCad E.D.A.	kicad 5.1.6-c6e7f7d87ubuntu18.04.1
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Id: 20/22



SolderingStationGroup : Jonny Svärd / Mathias Johansson / Magnus Thulesius			
Sheet: /Audio & FM-radio/			
File: audio_fmradio.sch			
Title: Audio & FM-radio :)			
Size: A4	Date: 2020-08-12		
KiCad E.D.A. kicad 5.1.6-c6e7f7d87ubuntu18.04.1	Rev: R0.1		
Id: 21/22			

