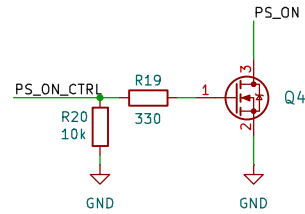
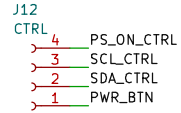
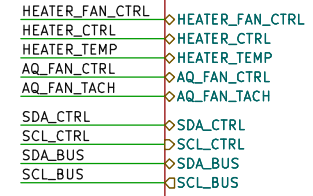
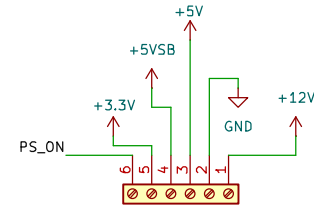
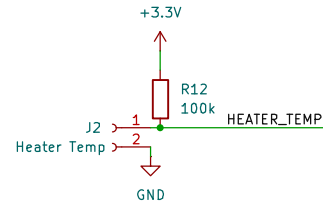


## Control connectors (to be connected to the printer)



## Generic PTC 12V 120W Heater

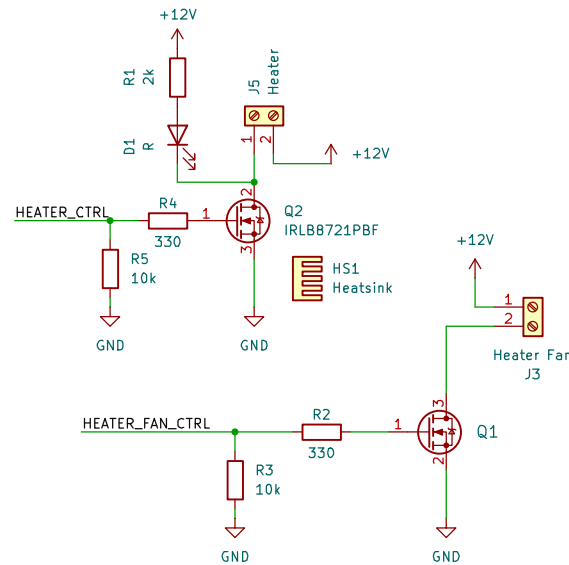
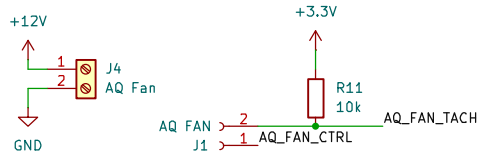


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leds

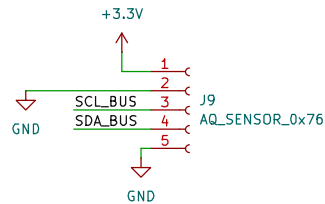
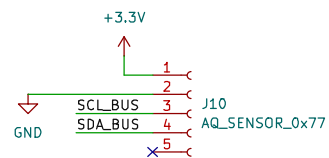


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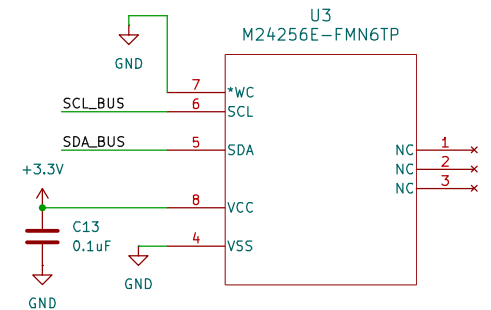
## Air Filtering (12V PWM Fan – PFC0612DE)



## Air Quality Sensors (BME680)



## EEPROM



- H1 MountingHole
- H2 MountingHole
- H3 MountingHole
- H4 MountingHole

Sheet: /  
File: ambiens-sc1.kicad\_sch

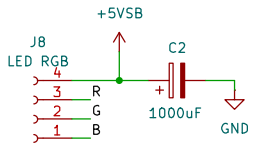
Title:

Size: A4  
KiCad E.D.A. 8.0.1

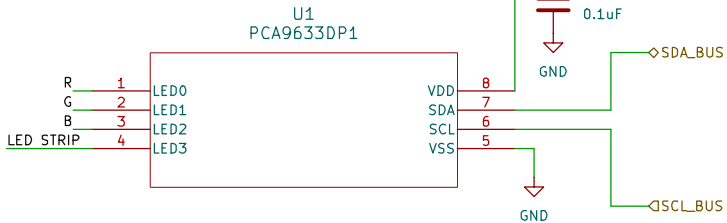
Date:

Rev:  
Id: 1/3

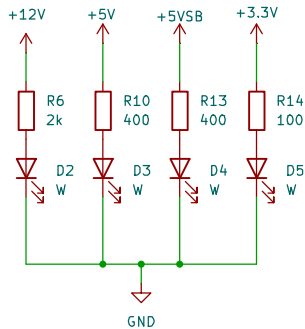
Ambiens SC1 Indicator



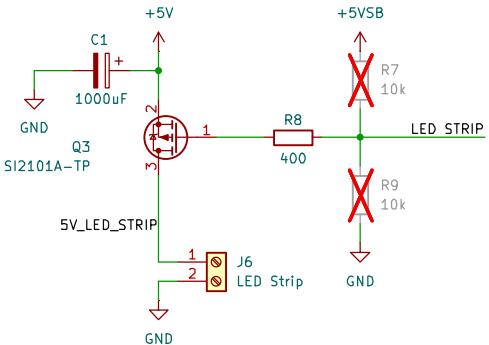
- The main LED Indicator is powered with the 5V standby source of the power supply to be able to stay turned on (with a different color) when the chamber is turned off.
- The led strip should be turned off when the chamber is off, so it is powered with the normal 5V rail.
- Due to a limitation of the PCA9633 (led driver) a P-Channel fet is needed to control the led strip.



PCB PWR Indicators



Ambiens SC1 Chamber Lightening



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

Title:

Size: A4 Date:

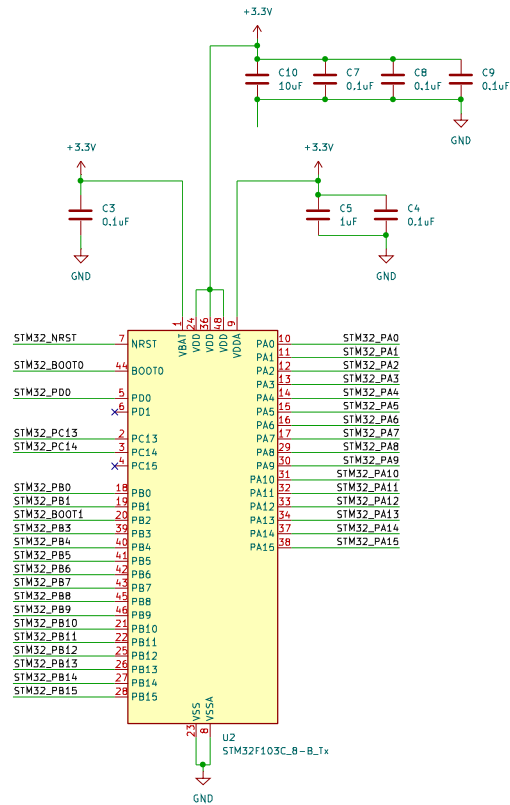
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Rev:

Id: 3/3

## STM32

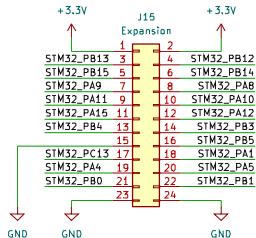
- **Caution:**
  - If the ADC is used, the VDD range is limited to 2.6 V to 3.6 V
  - If the ADC is not used, the VDD range is 2 V to 3.6 V
  - The VDD pins must be connected to VDD with external stabilization capacitors (five 100 nF ceramic capacitor + one tantalum capacitor (min. 4.7  $\mu$ F typ. 10  $\mu$ F))
  - The VBAT pin must be connected to the external battery (1.8 V < VBAT < 3.6 V). If no external battery is used, the pin must be connected to VDD with a 100 nF ceramic external stabilization capacitor.
  - The VDDA pin must be connected to two external stabilization capacitors (10 nF ceramic + 1  $\mu$ F Tantalum).



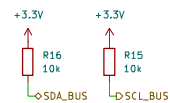
## Mappings

STM32_PB9	◇ SDA_BUS
STM32_PB8	◇ SCL_BUS
STM32_PB11	◇ SDA_BUS
STM32_PB10	◇ SCL_CTRL
STM32_PA6	◇ HEATER_FAN_CTRL
STM32_PA7	◇ HEATER_CTRL
STM32_PA0	◇ HEATER_TEMP
STM32_PA3	◇ AQF_FAN_CTRL
STM32_PA2	◇ AQF_FAN_TACH
STM32_PA13	PROG_SWD
STM32_PA14	PROG_SCLK
STM32_PB7	USART1_TX
STM32_PB6	USART1_RX

### Expansion

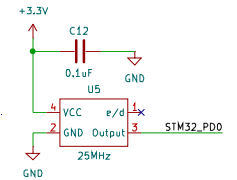


## I2C Bus

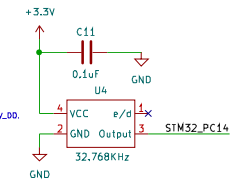


## Oscillators

**V<sub>1</sub>HSE**: User internal clock source frequency with a range of 1 to 25 MHz.  
**V<sub>1</sub>HSEL**: OSC<sub>IN</sub> input pin high-level voltage, specified as 0.7V<sub>DD</sub> minimum, V<sub>DD</sub> maximum.  
**V<sub>1</sub>LSL**: OSC<sub>IN</sub> input pin low-level voltage, ranging from V<sub>SS</sub> to 0.3V<sub>DD</sub>.  
**t<sub>1</sub>W<sub>1</sub>HSEL**: OSC<sub>IN</sub> high or low time, with a minimum of 5 ns.  
**t<sub>1</sub>W<sub>1</sub>SEL**: OSC<sub>IN</sub> rise time, with a maximum of 20 ns.  
**t<sub>1</sub>W<sub>1</sub>SEL**: OSC<sub>IN</sub> fall time, also with a maximum of 20 ns.  
**C<sub>1</sub>W<sub>1</sub>SEL**: OSC<sub>IN</sub> input capacitance, typically 5 pF.  
**Duty<sub>1</sub>W<sub>1</sub>SEL**: Duty cycle of the oscillator, ranging from 45% to 55%.  
**I<sub>1</sub>W<sub>1</sub>SEL**: OSC<sub>IN</sub> input leakage current, from -1 to +1  $\mu$ A, under the condition that V<sub>SS</sub>  $\leq$  V<sub>1</sub>IN  $\leq$  V<sub>DD</sub>.



**f<sub>EXT</sub>**(USE): User external clock source frequency, ranging from 32.768 kHz to 1000 kHz.  
**V<sub>LS1E</sub>**(OSC32\_IN): Input pin high-level voltage, specified as 0.7V<sub>DD</sub> minimum to V<sub>DD</sub> maximum.  
**V<sub>LS1L</sub>**(OSC32\_IN): Input pin low-level voltage, ranging from V<sub>SS</sub> to 0.3V<sub>DD</sub>.  
**t<sub>w</sub>(LSE)**: OSC32\_IN high or low time, with a minimum of 450 ns.  
**t<sub>r</sub>(LSE)**: OSC32\_IN rise or fall time, with a maximum of 50 ns.  
**C<sub>in</sub>(LSE)**: OSC32\_IN input capacitance, typically 5 pF.  
**Du<sub>C</sub>(LSE)**: Duty cycle, ranging from 30% to 70%.  
**I<sub>L</sub>**(OSC32\_IN): Input leakage current, from -1 to +1 µA, under the condition that V<sub>SS</sub> ≤ V<sub>IN</sub> ≤ V<sub>DD</sub>.



## Control Interface

