

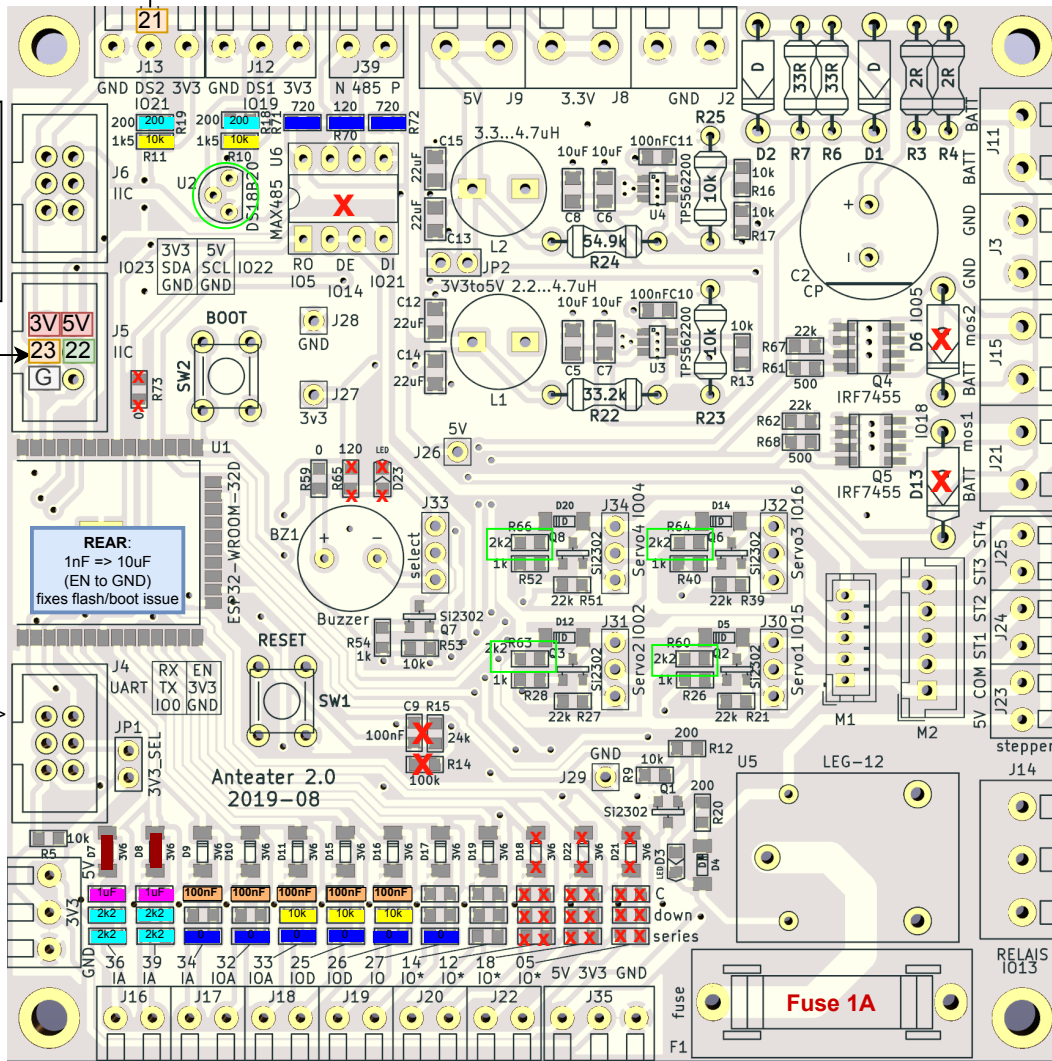
Waterpump Connection plan

05.05.2024

gpio 21: 7 Seg
Display CS

3x 7-Seg
Display
- gpio 22:
CLK
- gpio 23:
MOSI
- 5V

UART<=>
USB for
firmware
upload



12V from ps
GND from ps

Servo GND?

12v LED?
12V to Relay COM

gpio 04: VFD Start
gpio 16: VFD Speed-2
gpio 02: VFD Speed-3
gpio 15: VFD Speed-1
5V from VFD
note: gpio 15 is ON during
boot/flash!

gpio13: Relay
NC
COM 12V
NO 12V servo supply

gpio 36: ADC in: Pressure Sensor 0-5V -> 0-2.5V
gpio 39: ADC FREE
gpio 34: ADC UI: Poti 0-3.3V
gpio 32: ADC FREE
gpio 33: UI: Button 'Set'
gpio 25: UI: Button 'Mode/Start'
gpio 26: Flow-Sensor (Pulses in)
gpio 27: Servo Signal (PWM out)
gpio 14: [RS485]
gpio 12: [LED/BUZZER]
gpio 18: [MOSI]
gpio 05: [MOSI]
gpio 18: [MOSI]

cable configuration

control-box => VFD

Oelflex 7x0.5mm²
gn: GND (VFD)
01. 5V (VFD)
(to mosfets common)
02: 3V3 (reserve)
03: X4 Start
04: X1 speed bit 0
05: X2 speed bit 1
06: X3 speed bit 2

Pump => Box
see next page

control-box => UI Panel

Oelflex 12x0.5mm²
gn: GND - Poti, led
01. GND - Display
02: 3V3 - 2xButton, Poti, LED?
03: 5V - Display
04: FREE
05: Poti Analog (0 - 3.3V)
06: FREE
07: Display: CLK
08: Display: DIN (MOSI)
09: Display: CS
10: Button Set (-> switch to 3V3)
11: Button Mode (-> switch to 3V3)

Legend pcb

- 0 Ohm Resistor
- 3v3 Z-Diode
- 0 Ohm Optional
- [xxx] Conflicting Component
- xx nopop
- critical / important

Components on Pump

05.05.2024

servo

Oelflex 12x0.5mm²

gn : GND (brown)

1: 12V (red)

2: PWM signal (orange)



DS51150-12V

<https://de.aliexpress.com/item/1005006064899449.html>



pressure sensor

Oelflex 12x0.5mm²

gn : GND (black)

1: 5V (red)

2: Analog-out (green)



0.5 - 4.5V

0 - 500 psi

0 - 34.5 bar

<https://de.aliexpress.com/item/1005003614240635.htm>

Flow meter

Oelflex 3x0.5mm²

gn : GND (black)

1: 3,3V ~~5V~~ (red)

2: Pulse out (yellow)

note: no pulldown/pullup
needed



1l = 12 pulses
5-24V

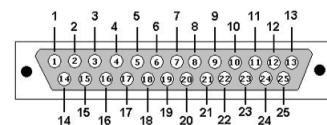
Cable Conection: Red: Positive+ (IN) ; Black:
Negative- (GND) ;Yellow: NPN Pulse signal (OUT)

<https://de.aliexpress.com/item/4000379407344.html>

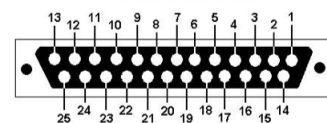
Pump => Box

D-Sub 25 pin Connector, pin assignment

Signal	Device	Color	Pins
GND	Servo	black, brown, red, orange	1, 2, 3, 4
GND	Pressure sensor	yellow	5
GND	Flow sensor	green	6
12 V	Servo	blue, purple, gray, pink	7, 8, 9, 10
5 V	Pressure sensor	light brown	11
3.3 V	Flow sensor	white	12
PWM 3.3 V	Servo	white-black	13
Analog 0-5 V	Pressure sensor	white-brown	14
Pulse	Flow sensor	white-red	15
FREE			16-25



View looking into male connector



View looking into female connector

Wiring-plan

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Control cabinet

