MCU Connections

File: MCU.kicad_sch

Communication Ports

File: comm.kicad_sch

Sensors

File: Sensors.kicad_sch

Motor Controls

File: Motor Controls.kicad_sch

Aux Controls

File: Aux Controls.kicad_sch

Sheet: /
File: Control board.kicad_sch

Title:

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CONTROL PORTS

U201E
NUCLEO-H753ZI

CN7

		VREFP_CN7	CN7_6
M3_EN	CN7_20	D8/IO	
M2_DIR	CN7_18	D9/TIMER_B_PWM2	
		D25/SPI_B_MISO	CN7_19
		D24/SPI_B_NSS	CN7_17
		D23/I2S_B_CK/SPI_B_SCK	CN7_15
		D22/I2S_B_SD/SPI_B_MOSI	CN7_13 M1_EN
M2_EN	CN7_16	D10/SPI_A_CS/TIM_B_PWM3	
M1_DIR	CN7_14	D11/SPI_A_MOSI/TIM_E_PWM1	
TH_DO/MISO1	CN7_12	D12/SPI_A_MISO	
TH_CLK1	CN7_10	D13/SPI_A_SCK	
M3_PWM	CN7_4	D14/I2C_A_SDA	
M2_PWM	CN7_2	D15/I2C_A_SCL	
M1_PWM	CN7_1	D16/I2S_A_MCK	
		D21/I2S_B_MCK	CN7_11
		D20/I2S_B_WS	CN7_9 HEATER IN
		D19/I2S_A_WS	CN7_7
		D18/I2S_A_CK	CN7_5 TH_CS1
		D17/I2S_A_SD	CN7_3 M4_PWM
		GND_CN7	CN7_8

GND

U201F
NUCLEO-H753ZI

CN10

		AVDD	CN10_1
		D34/TIMER_B_ETR	CN10_33
	CN10_7	A6/ADC_A_IN	
	CN10_9	A7/ADC_B_IN	
	CN10_11	A8/ADC_C_IN	
		D32/TIMER_C_PWM1	CN10_29 L3_PWM
		D36/TIMER_C_PWM2	CN10_32 L1_PWM
		D35/TIMER_C_PWM3	CN10_34 L2_PWM
	CN10_16	D0/USART_A_RX	
LB4_OUT	CN10_14	D1/USART_A_TX	
		D33/TIMER_D_PWM1	CN10_31 L4_PWM
M4_EN	CN10_6	D6/TIMER_A_PWM1	
M4_DIR	CN10_4	D5/TIMER_A_PWM2	
LB2_OUT	CN10_10	D3/TIMER_A_PWM3	
		D2/IO	CN10_12 LB3_OUT
		D4/IO	CN10_8 LB1_OUT
		D7/IO	CN10_2 M3_DIR
	CN10_30	D37/TIMER_A_BKIN1	
	CN10_28	D38/TIMER_A_BKIN2	
	CN10_26	D39/TIMER_A_PWM3N	
	CN10_24	D40/TIMER_A_PWM2N	
	CN10_22	D41/TIMER_A_ETR	
	CN10_18	D42/TIMER_A_PWM1N	
		D26/QSPI_CS	CN10_17
		D27/QSPI_CLK	CN10_15
		D30/QSPI_BK1_IO0	CN10_23
		D29/QSPI_BK1_IO1	CN10_21
		D31/QSPI_BK1_IO2	CN10_25
		D28/QSPI_BK1_IO3	CN10_19
		AGND_CN10	CN10_3
		GND_CN10	CN10_27

GND

U201D
NUCLEO-H753ZI

CN9

F2_OUT	CN9_1	A0/ADC12_INP15	
F1_OUT	CN9_3	A1/ADC123_INP10	
TEMP 1 OUT	CN9_5	A2/ADC12_INP13	
	CN9_7	A3/ADC12_INP5	
TEMP 2 OUT	CN9_9	A4/ADC123_INP12/I2C1_SDA	
	CN9_11	A5/ADC3_INP6/I2C1_SCL	
DE	CN9_2	D51/USART_B_SCLK	
RX	CN9_4	D52/USART_B_RX	
TX	CN9_6	D53/USART_B_TX	
	CN9_8	D54/USART_B_RTS	
	CN9_10	D55/USART_B_CTS	
	CN9_14	D56/SAI_A_MCLK	
	CN9_16	D57/SAI_A_FS	
	CN9_18	D58/SAI_A_SCK	
	CN9_20	D59/SAI_A_SD	
		D68/I2C_B_SDA	CN9_21 I2C_SDA
		D69/I2C_B_SCL	CN9_19 I2C_SCL
		D70/I2C_B_SMBA	CN9_17 I2C_SMBA
		D66/CAN_TX	CN9_27
		D67/CAN_RX	CN9_25
		D64/IO	CN9_30
		D65/IO	CN9_29
		D71/COMP2_INP	CN9_15
		D72/COMP1_INP	CN9_13
		D62/SAI_B_MCLK	CN9_26
		D63/SAI_B_FS	CN9_28
		D61/SAI_B_SCK	CN9_24
		D60/SAI_B_SD	CN9_22
		GND_CN9	CN9_23

GND

U201C
NUCLEO-H753ZI

CN8

		VIN_CN8	CN8_15
		5V_CN8	CN8_9 5V
		3V3_CN8	CN8_7
	CN8_5	NRST_CN8	
		IOREF_CN8	CN8_3
	CN8_2	D43/SDMMC_D0	
	CN8_4	D44/SDMMC_D1/I2S_A_CKIN	
	CN8_6	D45/SDMMC_D2	
	CN8_8	D46/SDMMC_D3	
	CN8_10	D47/SDMMC_CK	
	CN8_12	D48/SDMMC_CMD	
	CN8_1	NC_CN8	
		D50/IO	CN8_16 D2 IN
		D49/IO	CN8_14 D1 IN
		GND_CN8	CN8_13

GND

Sheet: /MCU Connections/
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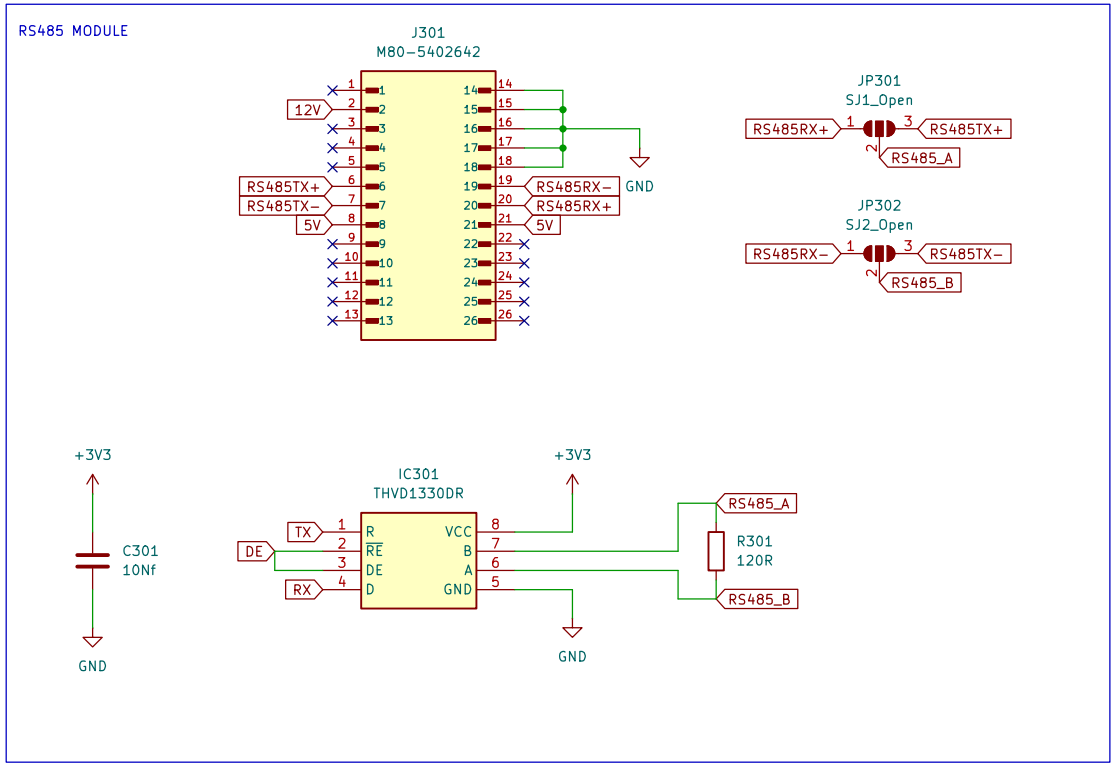

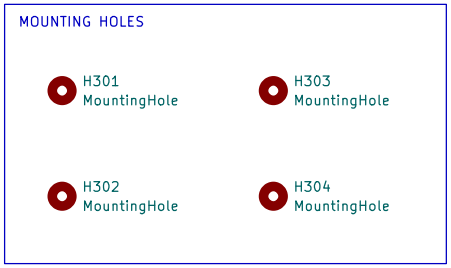

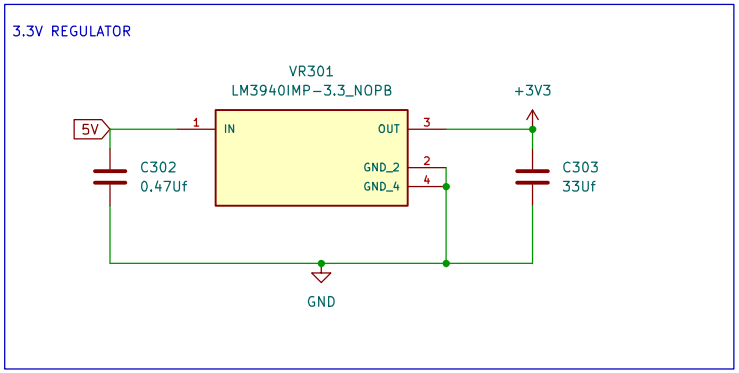

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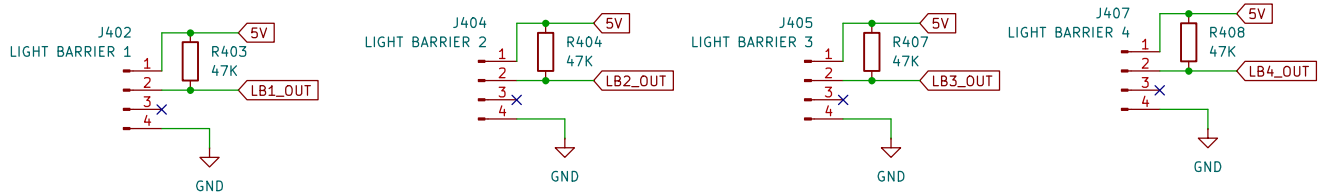
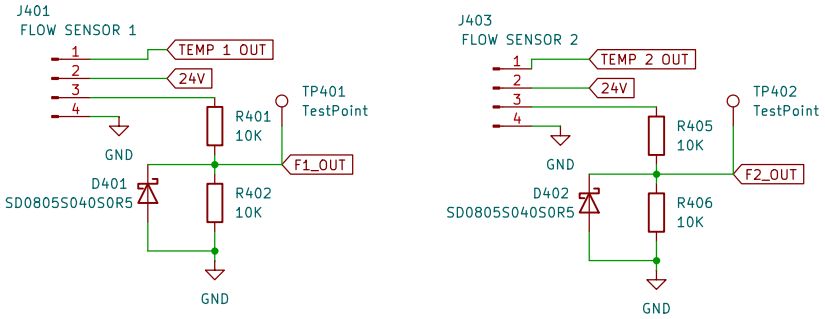
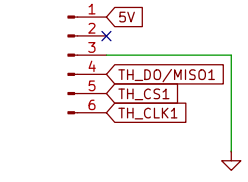
LIGHT BARRIERS



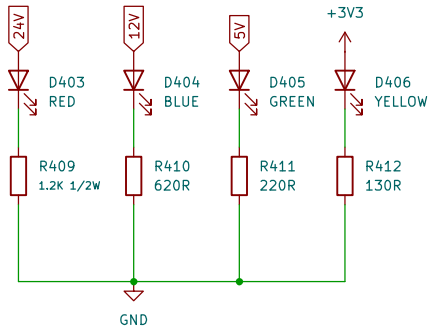
FLOW SENSORS



MAX31855 THERMOCOUPLE MODULE



STATUS LEDS



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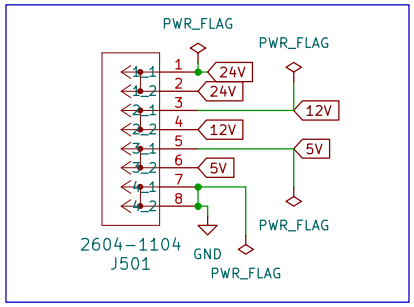
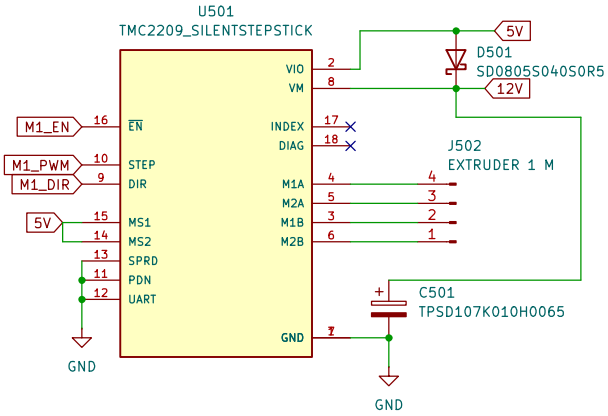
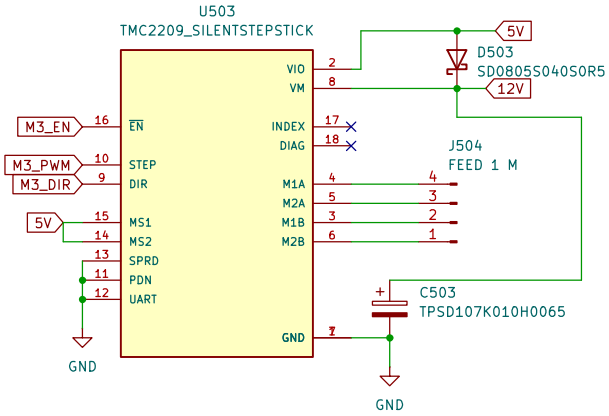
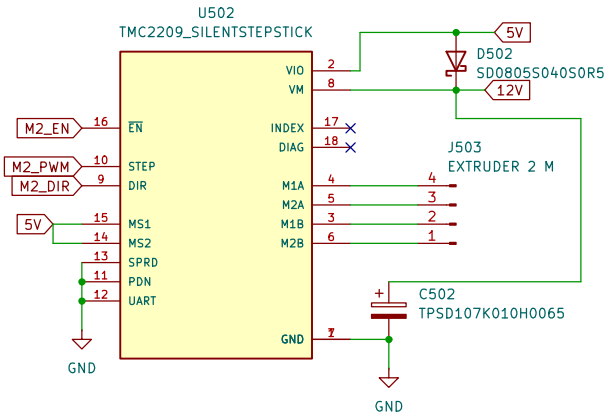
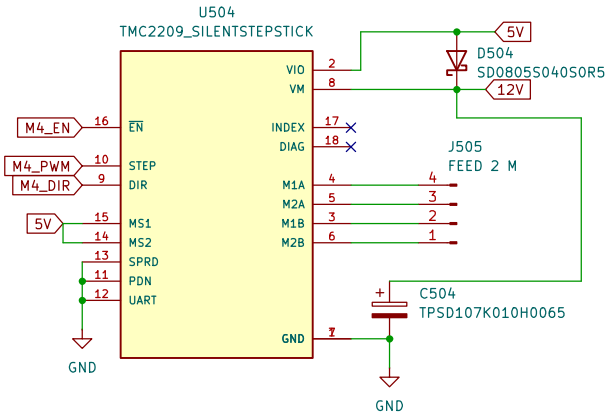


MOTOR DRIVERS









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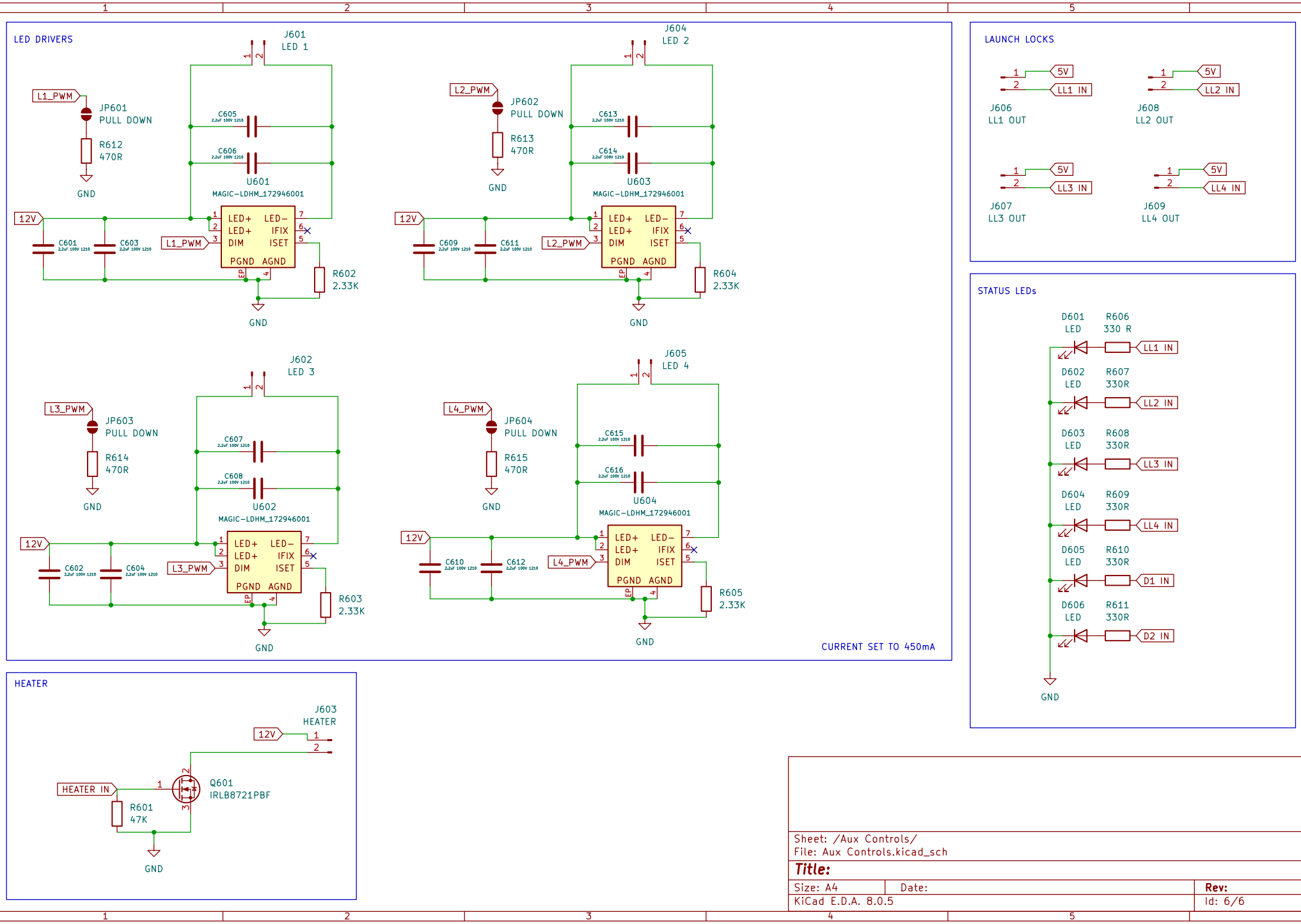
LED DRIVERS
J601
LED 1
L1_PWM
JP601
PULL DOWN
R612
470R
GND
C605
2.2uF 100V 1210
C606
2.2uF 100V 1210
U601
MAGIC-LDHM_172946001
12V
C601
2.2uF 100V 1210
C603
2.2uF 100V 1210
L1_PWM
LED+
LED+
DIM
LED-
IFIX
ISET
PGND
AGND
EP
R602
2.33K
GND
J604
LED 2
L2_PWM
JP602
PULL DOWN
R613
470R
GND
C613
2.2uF 100V 1210
C614
2.2uF 100V 1210
U603
MAGIC-LDHM_172946001
12V
C609
2.2uF 100V 1210
C611
2.2uF 100V 1210
L2_PWM
R604
2.33K
GND
J602
LED 3
L3_PWM
JP603
PULL DOWN
R614
470R
GND
C607
2.2uF 100V 1210
C608
2.2uF 100V 1210
U602
MAGIC-LDHM_172946001
12V
C602
2.2uF 100V 1210
C604
2.2uF 100V 1210
L3_PWM
R603
2.33K
GND
J605
LED 4
L4_PWM
JP604
PULL DOWN
R615
470R
GND
C615
2.2uF 100V 1210
C616
2.2uF 100V 1210
U604
MAGIC-LDHM_172946001
12V
C610
2.2uF 100V 1210
C612
2.2uF 100V 1210
L4_PWM
R605
2.33K
GND
CURRENT SET TO 450mA
LAUNCH LOCKS
5V
LL1 IN
J606
LL1 OUT
5V
LL2 IN
J608
LL2 OUT
5V
LL3 IN
J607
LL3 OUT
5V
LL4 IN
J609
LL4 OUT
STATUS LEDs
D601
LED
R606
330 R
LL1 IN
D602
LED
R607
330R
LL2 IN
D603
LED
R608
330R
LL3 IN
D604
LED
R609
330R
LL4 IN
D605
LED
R610
330R
D1 IN
D606
LED
R611
330R
D2 IN
GND
HEATER
J603
HEATER
12V
HEATER IN
Q601
IRLB8721PBF
R601
47K
GND
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