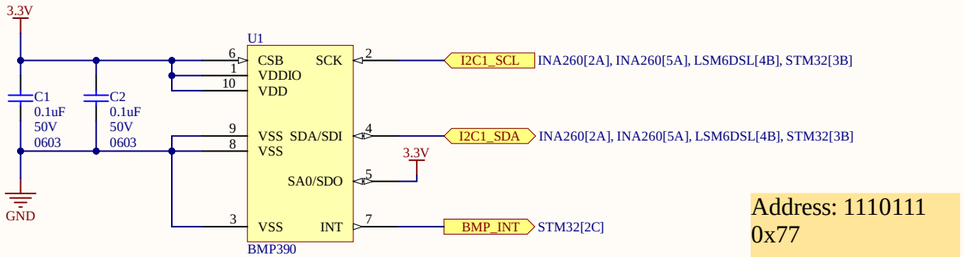


Address: 1110111
0x77

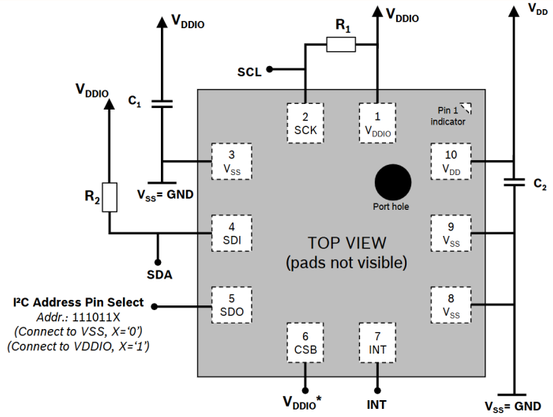


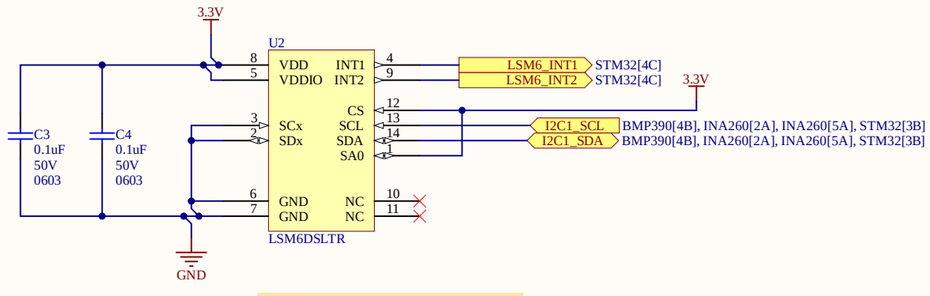
Figure 25: I²C connection diagram (Pin1 marking indicated)

Notes:

- the recommended value for C_1, C_2 is 100 nF and for R_1, R_2 is 4.7 kΩ.
- *: It is recommended to connect the BMP390 CSB pin to programmable pin which drives V_{DDIO} at POR of device (see Chapter 5.1)

SHEET NAME: BMP390.SchDoc	PROJECT: CTRL_FREAK.PrjPcb
ENGINEER: ALEX MOCZARSKI	DATE: 3/22/2025

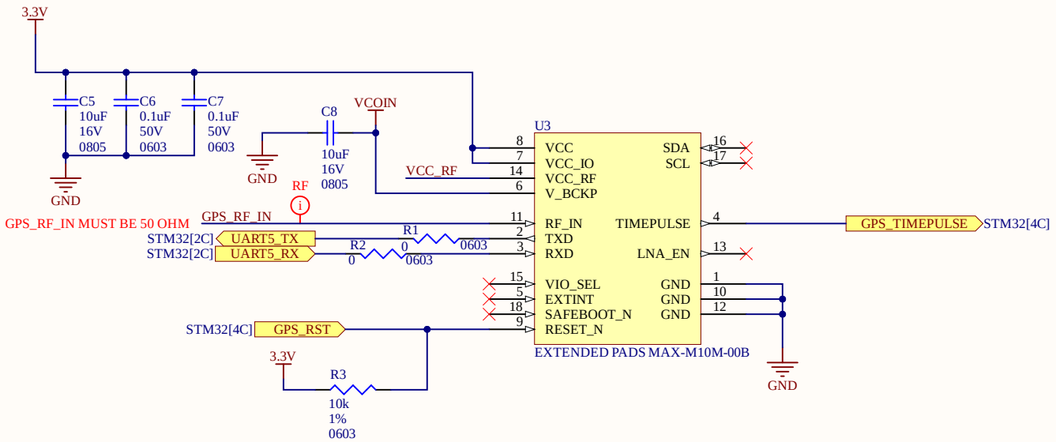
RIT LAUNCH INITIATIVE

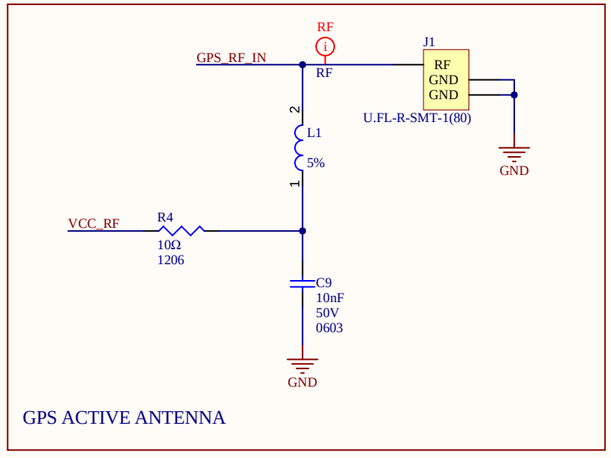


Address: 1101011 : 0x6B

SHEET NAME: LSM6DSL.SchDoc	PROJECT: CTRL_FREAK.PrjPcb
ENGINEER: ALEX MOCZARSKI	DATE: 3/22/2025

RIT LAUNCH INITIATIVE





C External components

This section lists the recommended values for the external components in the reference designs.

C.1 Standard capacitors

Table 37 presents the recommended capacitor values for MAX-M10M.

Name	Use	Type / Value
C14	RF Bias-T capacitor	10 nF, 10%, 16 V, X7R

Table 37: Standard capacitors

C.2 Standard resistors

Table 38 presents the recommended resistor values for MAX-M10M.

Name	Use	Type / Value
R5	Antenna supervisor voltage divider	560 Ω, 5%, 0.1 W
R6	Antenna supervisor voltage divider	100 kΩ, 5%, 0.1 W
R7	Pull-up resistor at antenna supervisor transistor	100 kΩ, 5%, 0.1 W
R8	Antenna supervisor current limiter/shunt resistor	10 Ω, 5%, 0.25 W

Table 38: Standard resistors

C.3 Inductors

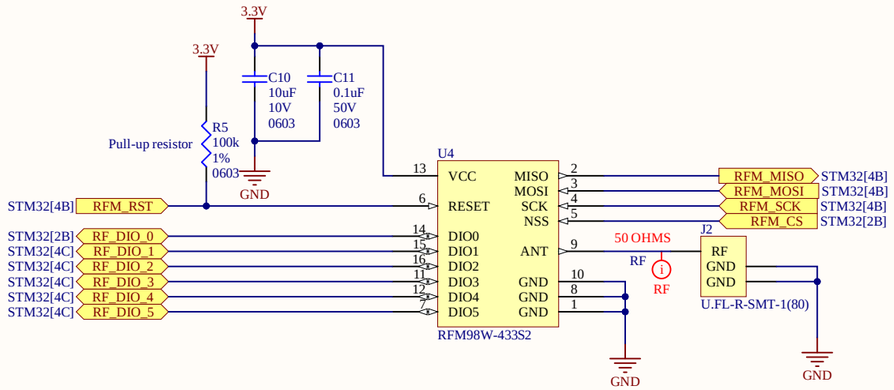
Table 39 presents the recommended inductor values for MAX-M10M.

Name	Use	Type / Value	Recommended component
L3	RF Bias-T inductor	27 nH, 5%	Murata LQG15H, LQW15A series Johanson Technology L-07W series Any other inductor with impedance >500 Ω at GNSS frequency and current rating above 300 mA.

Table 39: Recommended inductors

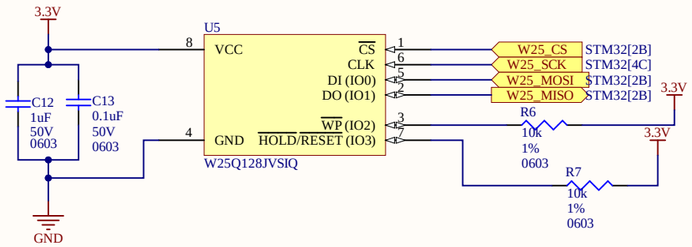
SHEET NAME: GPS.SchDoc	PROJECT: CTRL_FREAK.PrjPcb
ENGINEER: ALEX MOCZARSKI	DATE: 3/22/2025

RIT LAUNCH INITIATIVE



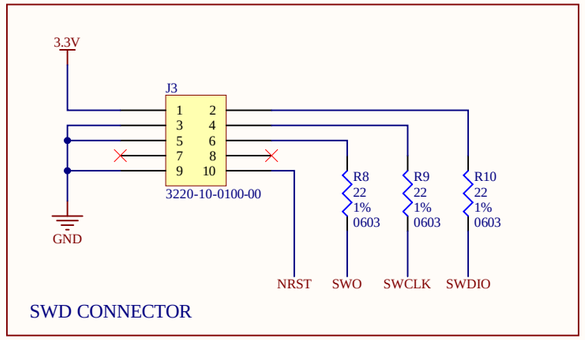
SHEET NAME: RFM98W433S2.SchDoc	PROJECT: CTRL_FREAK.PrjPcb
ENGINEER: ALEX MOCZARSKI	DATE: 3/22/2025

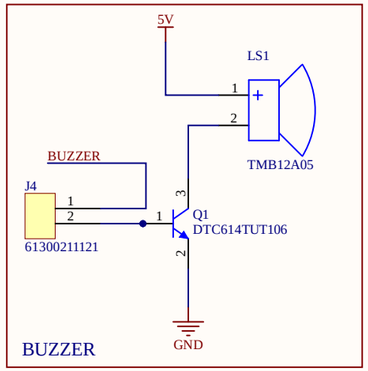
RIT LAUNCH INITIATIVE

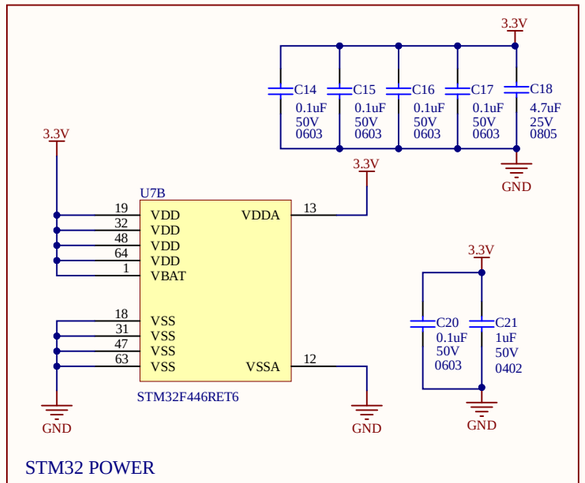


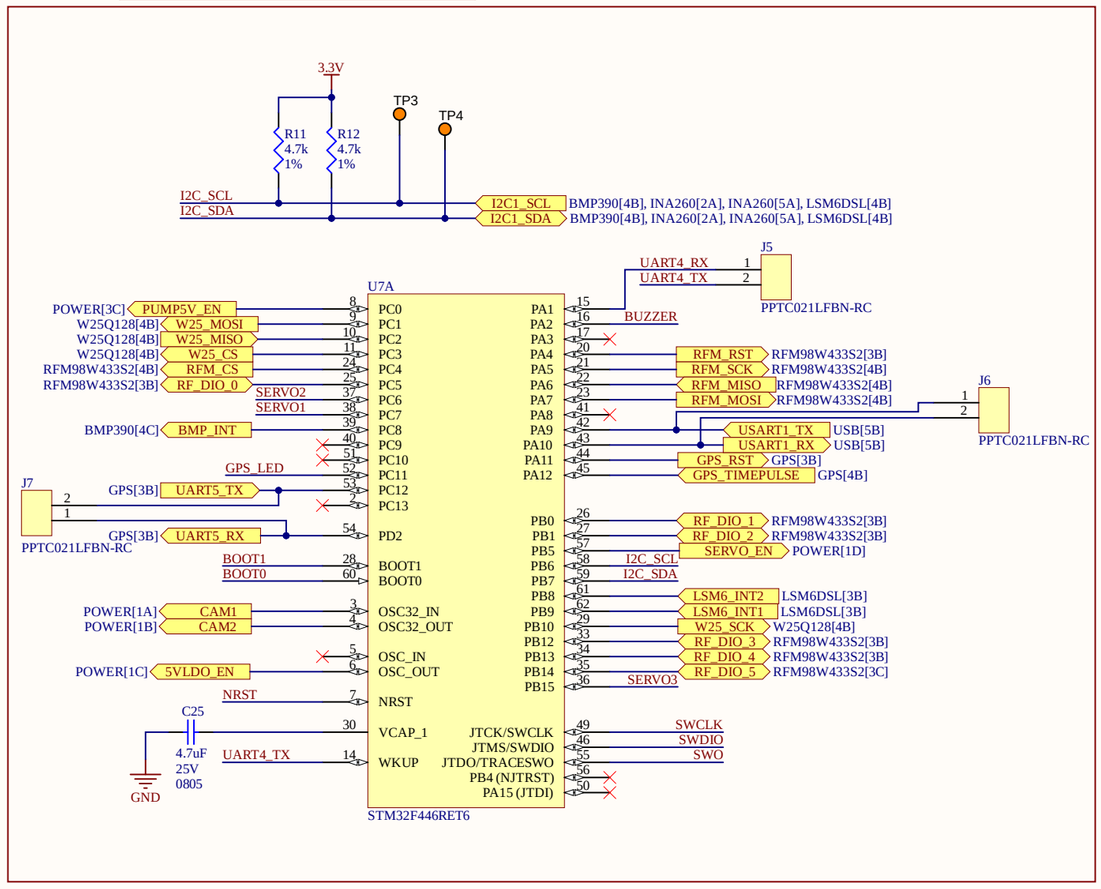
SHEET NAME: W25Q128.SchDoc	PROJECT: CTRL_FREAK.PrjPcb
ENGINEER: ALEX MOCZARSKI	DATE: 3/22/2025

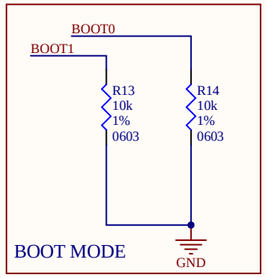
RIT LAUNCH INITIATIVE

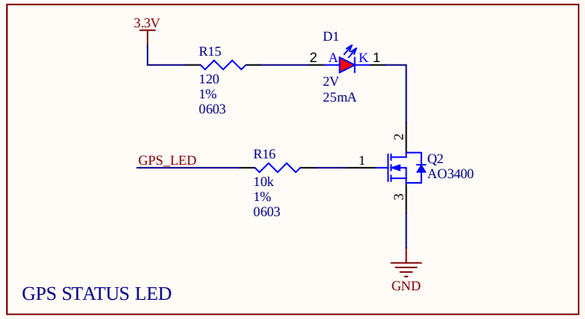


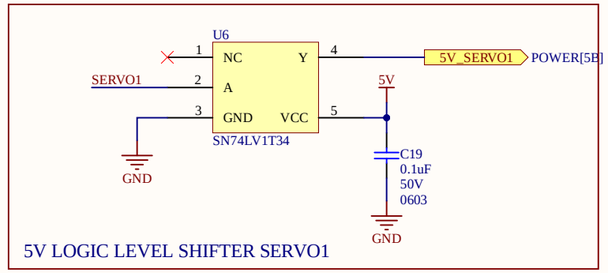


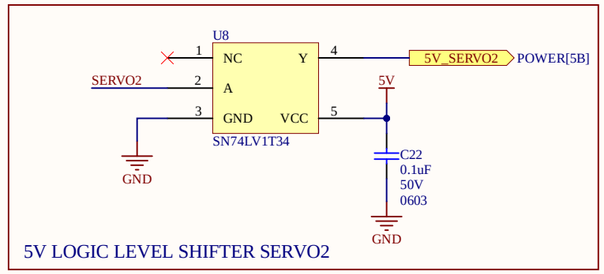


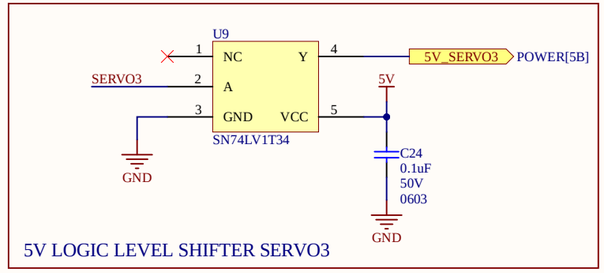






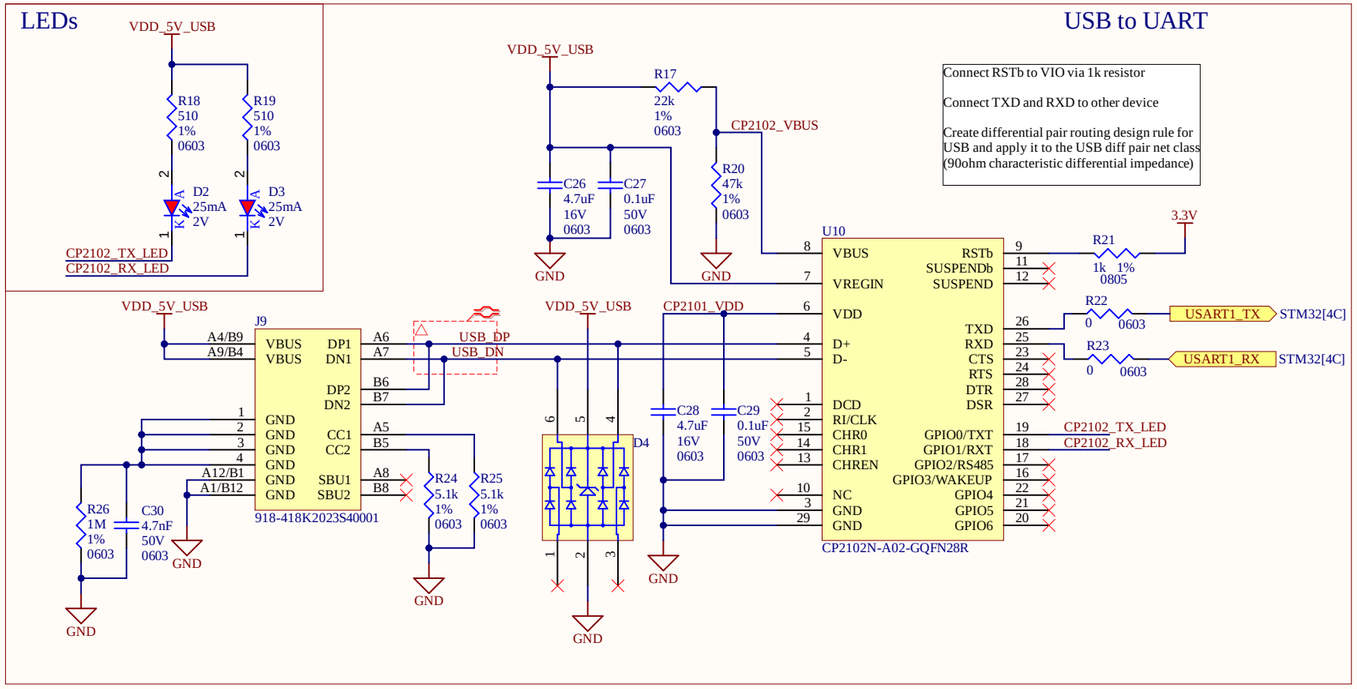






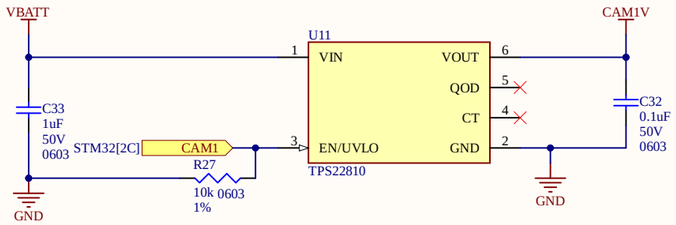
SHEET NAME: STM32.SchDoc	PROJECT: CTRL_FREAK.PrjPcb
ENGINEER: Alex Moczarski	DATE: 3/22/2025

RIT LAUNCH INITIATIVE

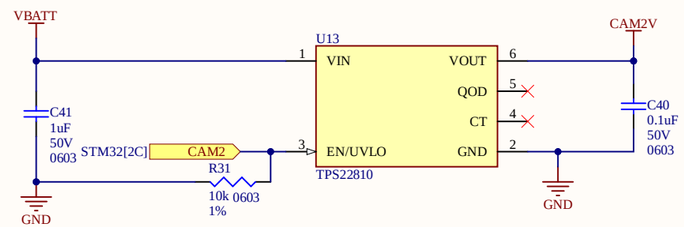


SHEET NAME: USB.SchDoc	PROJECT: CTRL_FREAK.PrjPcb
ENGINEER: ALEX MOCZARSKI	DATE: 3/22/2025

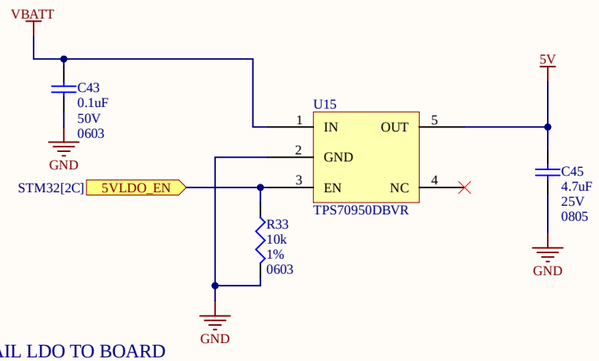
RIT LAUNCH INITIATIVE



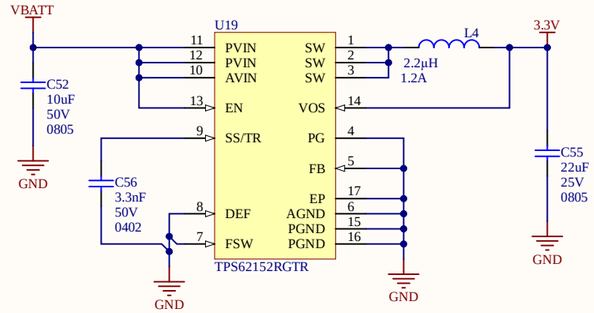
7.4V LOAD SWITCH TO CAM1



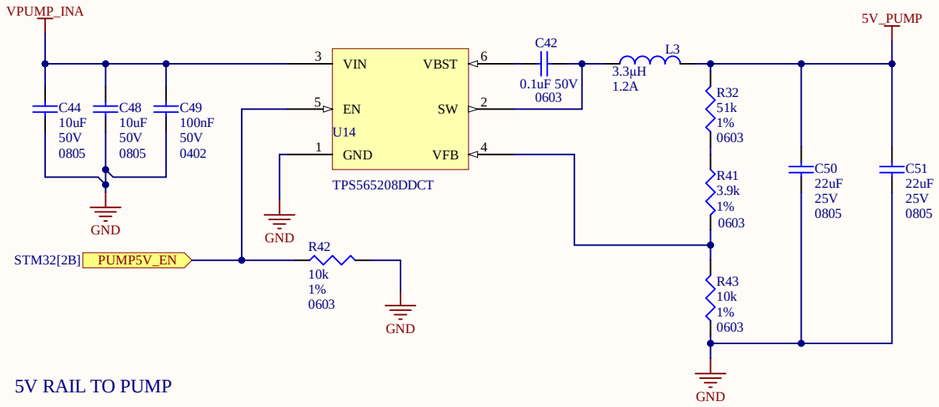
7.4V LOAD SWITCH TO CAM2



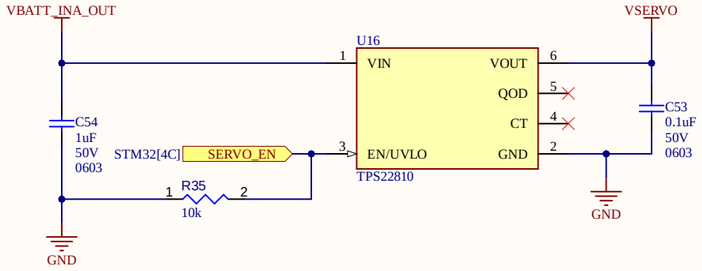
5V RAIL LDO TO BOARD



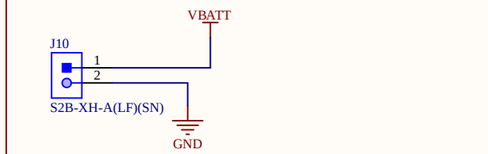
3.3V RAIL TO BOARD



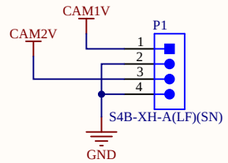
5V RAIL TO PUMP



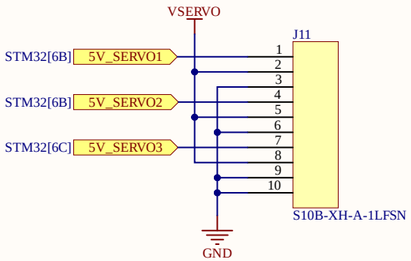
7.4V LOAD SWITCH TO SERVOS



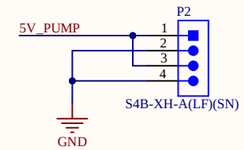
BATTERY INPUT FROM SCREW SWITCH



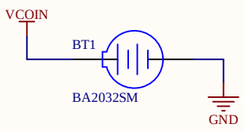
4 PIN JST CONNECTOR TO CAMERAS



10 PIN JST CONNECTOR TO SERVOS

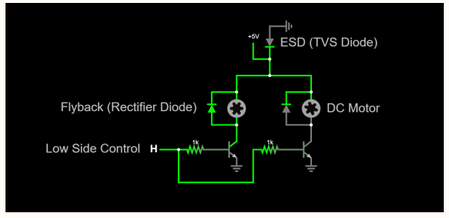


4 PIN JST CONNECTOR TO PUMPS



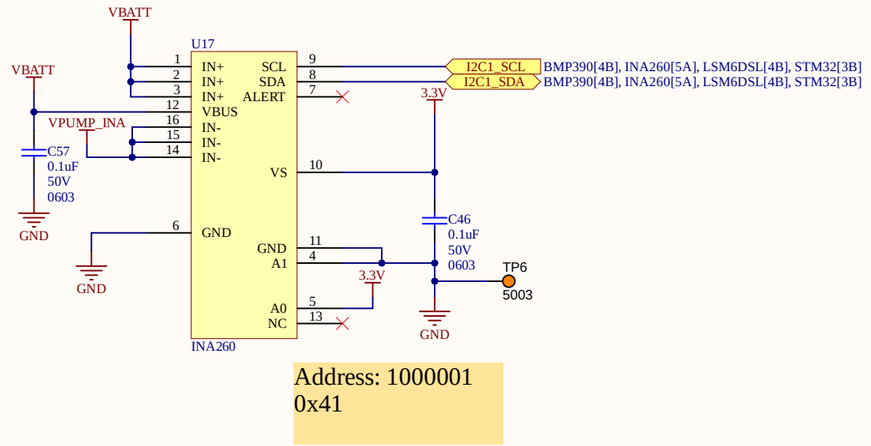
COIN CELL BATTERY

PUMP CONTROL CIRCUIT BASED OFF OF THIS DIAGRAM VIA ONE JIM HEANEY (I PRAY THIS IS NOT JIMFLUENCE INCARNATE)



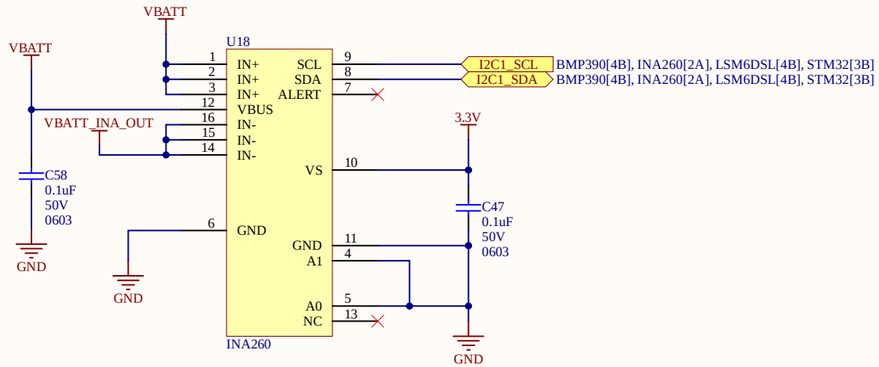
SHEET NAME: POWER.SchDoc	PROJECT: CTRL_FREAK.PrjPcb
ENGINEER: ALEX MOCZARSKI	DATE: 3/22/2025

RIT LAUNCH INITIATIVE



Address: 1000001
0x41

PUMP VOLTAGE RAIL



Address: 1000000
0x40

SERVO RAIL

8.5.3 Communications Bus Overview

The INA260 offers compatibility with both I^2C and SMBus interfaces. The I^2C and SMBus protocols are essentially compatible with one another.

The I^2C interface is used throughout this data sheet as the primary example, with SMBus protocol specified only when a difference between the two systems is discussed. Two lines, SCL and SDA, connect the device to the bus. Both SCL and SDA connect to the bus and require external pullup resistors.

Table 2. Address Pins and Slave Addresses

A1	A0	SLAVE ADDRESS
GND	GND	1000000
GND	VS	1000001
GND	SDA	1000010
GND	SCL	1000011
VS	GND	1000100
VS	VS	1000101
VS	SDA	1000110
VS	SCL	1000111
SDA	GND	1001000
SDA	VS	1001001
SDA	SDA	1001010
SDA	SCL	1001011
SCL	GND	1001100
SCL	VS	1001101
SCL	SDA	1001110
SCL	SCL	1001111

9.2 Typical Application

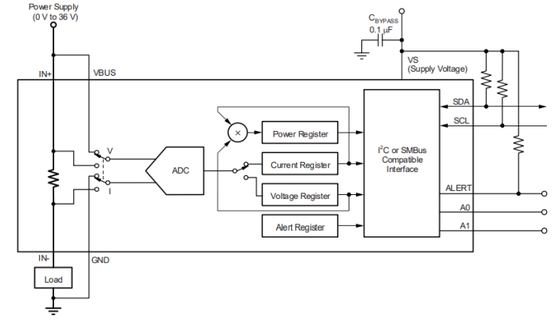


Figure 38. Typical Circuit Configuration, INA260

SHEET NAME: INA260.SchDoc	PROJECT: CTRL_FREAK.PrjPcb
ENGINEER: ALEX MOCZARSKI	DATE: 3/22/2025

RIT LAUNCH INITIATIVE