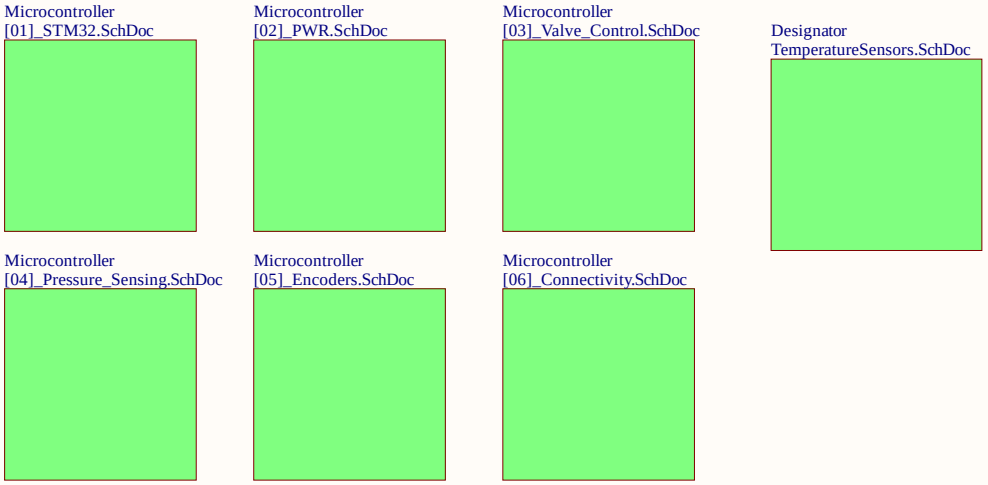
QMUL HYPERLINK

Subsystem Coversheet

Subsystem: TELEMETRY & BRAKING



SHEET DESCRIPTION:

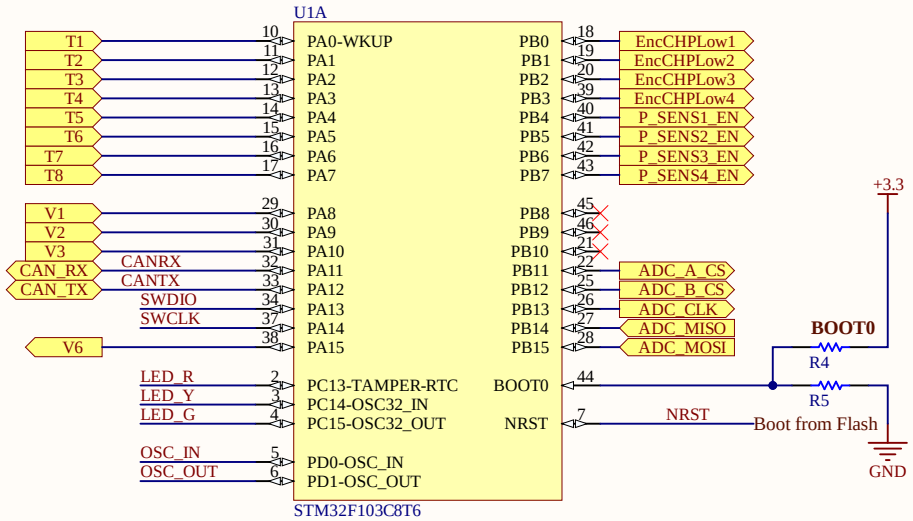
PAGE 1 - Microcontroller
PAGE 2 - PWR
PAGE 4 - Valve Control
PAGE 5 - Pressure Sensing
PAGE 6 - Encoders
PAGE 7 - Connectivity

COMMUNICATION INTERFACES:

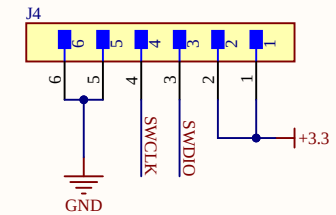
CAN BUS

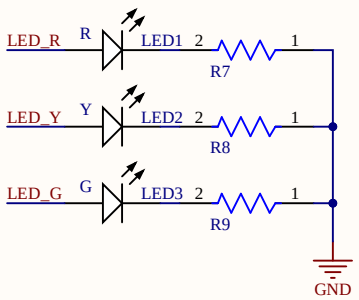
DOCUMENT REVISION: 1.0
APPROVED BY: Gleb Smantcer
Michal Makowka

MICROCONTROLLER

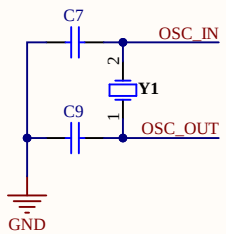


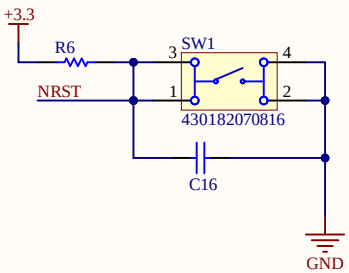
Connect ST-LINK here

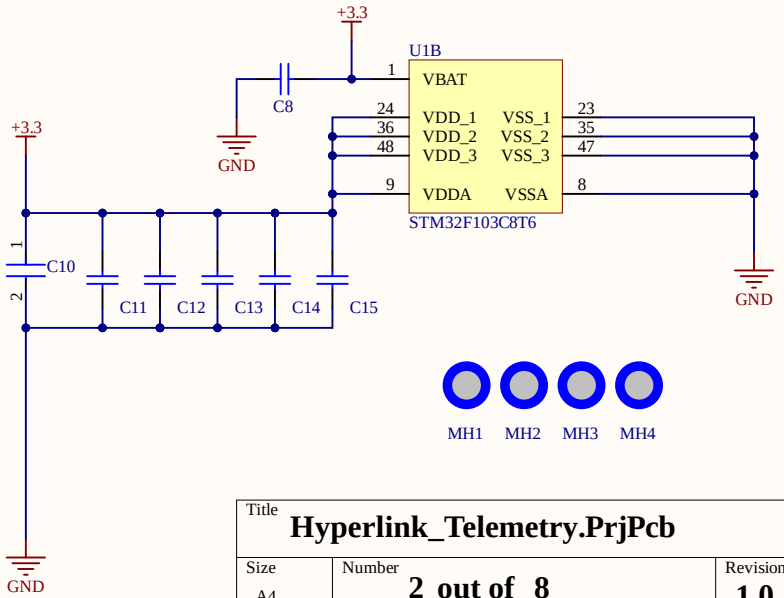




Crystal 8 MHz







MH1 MH2 MH3 MH4

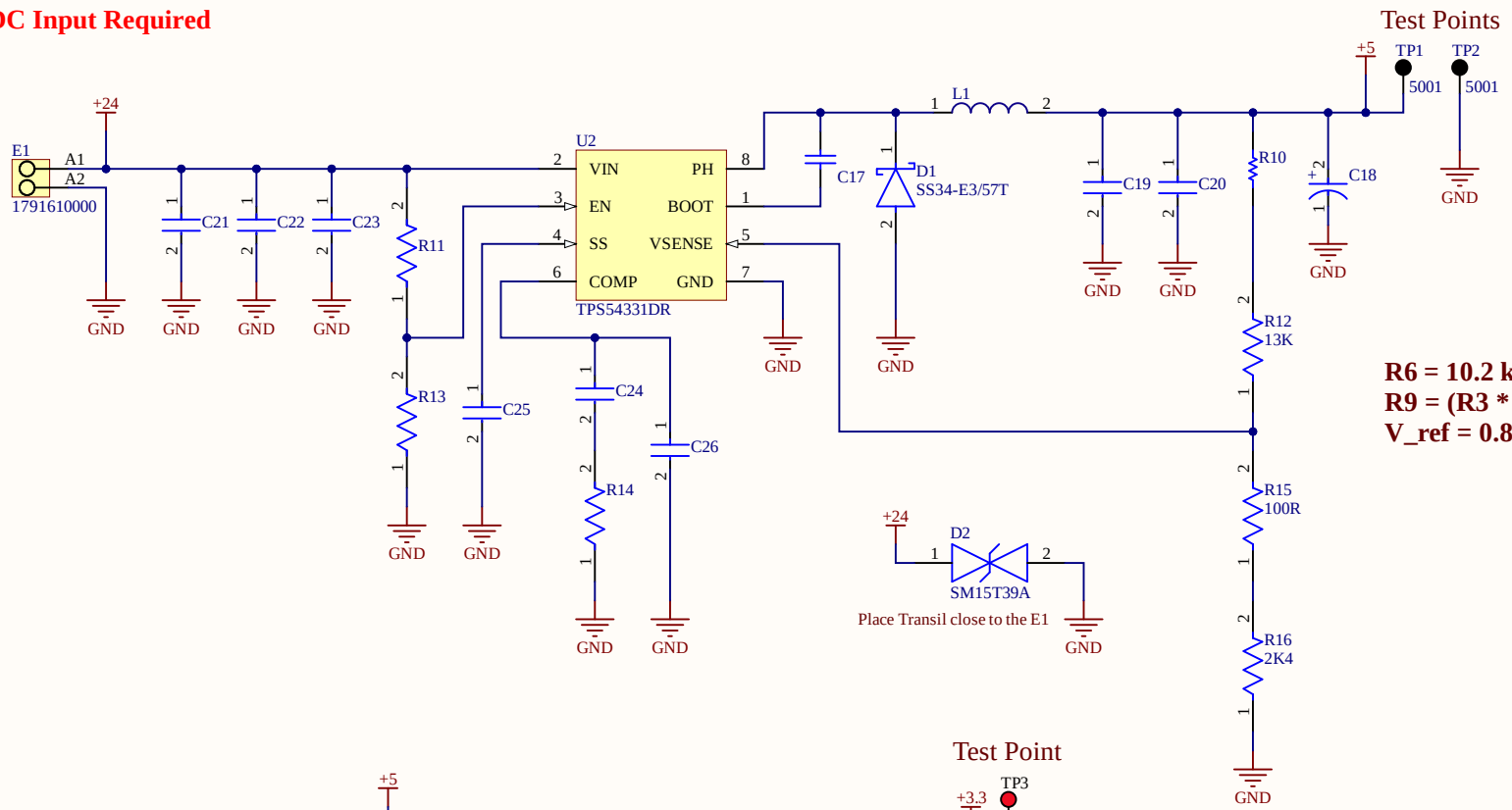
Title: **Hyperlink_Telemetry.PrjPcb**		
Size: A4	Number: **2 out of 8**	Revision: **1.0**
Date: 10/26/2023		Sheet of
File: [01]_STM32.SchDoc		Drawn By:

POWER

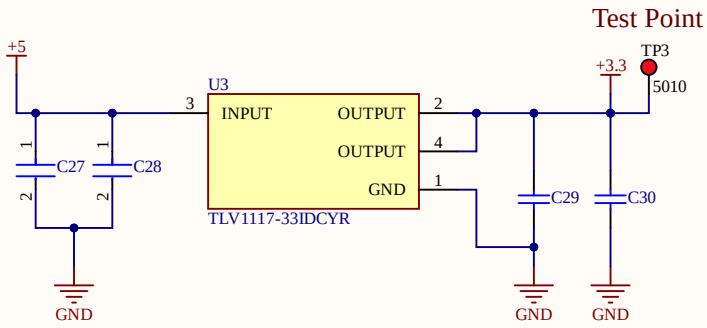
V_IN: 24 VDC
V_OUT: 5 VDC
I_MAX: 3 A
F_SW: 570kHz

+24 VDC Input Required

22uf electrolytic - low in stock
UUD1H150MCL1GS 15uf alt



R6 = 10.2 kR
R9 = (R3 * V_ref) / (V_out - V_ref)
V_ref = 0.8V

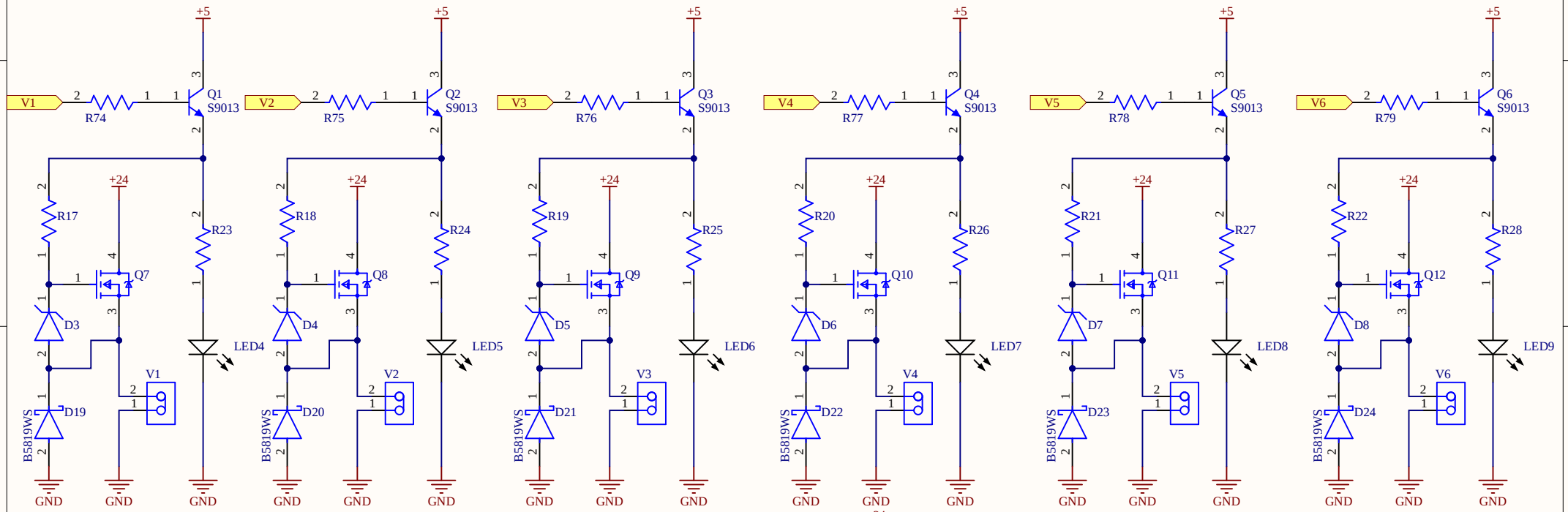


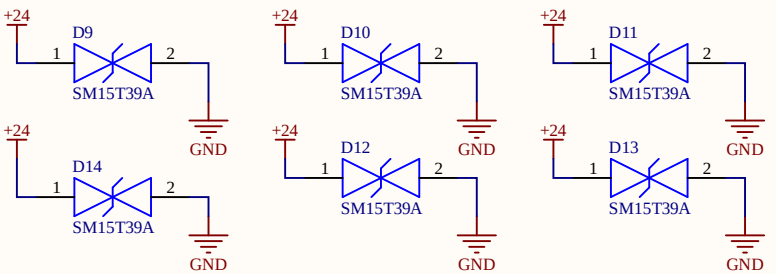
Title: **Hyperlink_Telemetry.PrjPcb**		
Size: A4	Number: **3 out of 7**	Revision: *
Date: 10/26/2023		Sheet of
File: [02]_PWR.SchDoc		Drawn By:

VALVE CONTROL

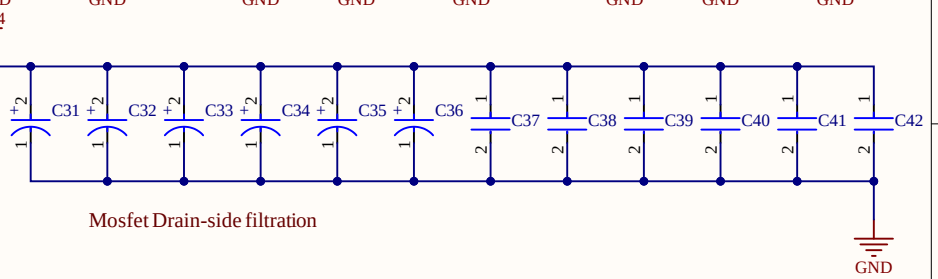
P valves high- 1W
P valves low - 0.3W
VDC - 24V

I - 43 mA
I low - 12mA





Each TVS Close to Valve Connector



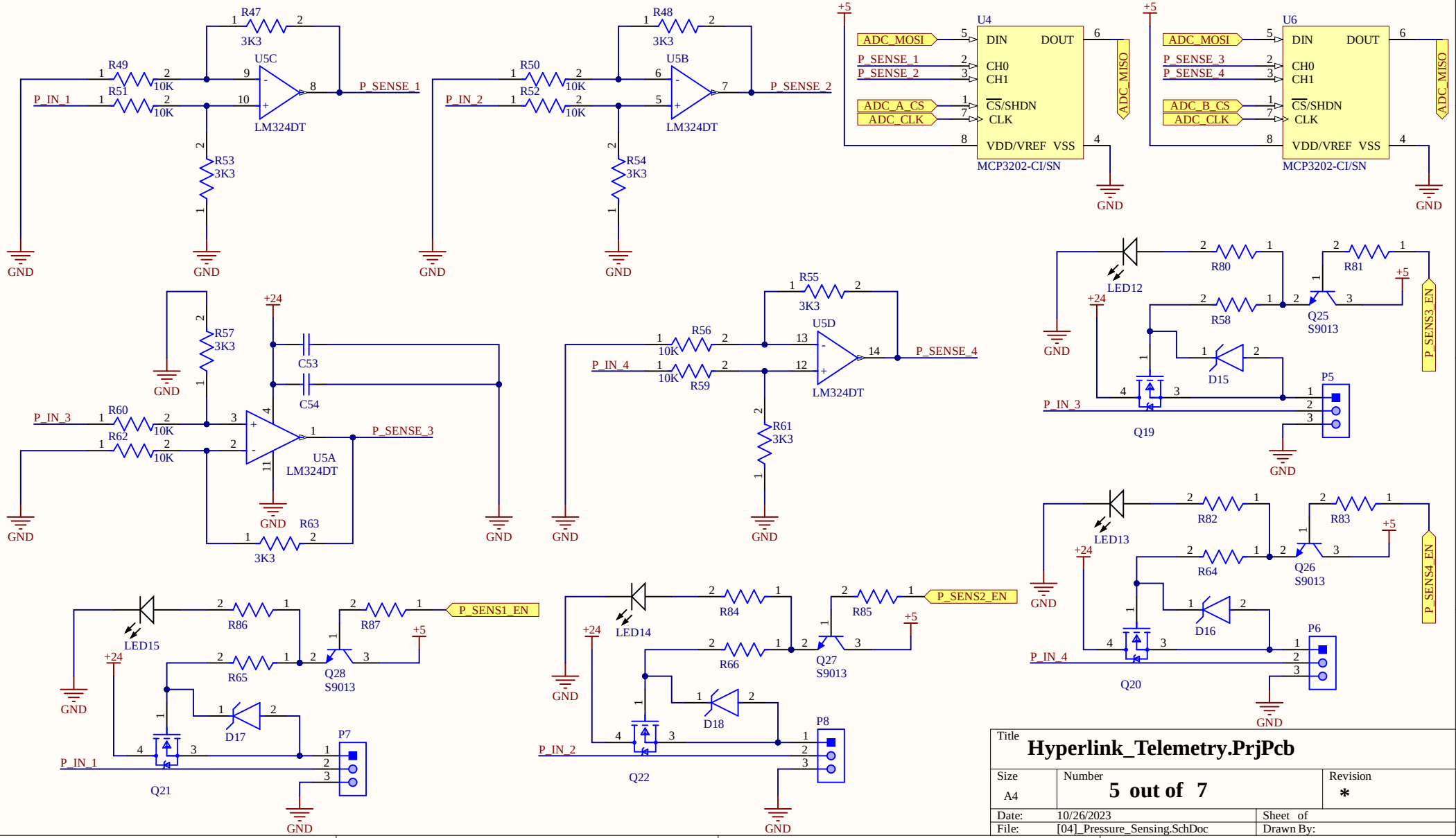
Mosfet Drain-side filtration

http://www.falstad.com/circuit/circuitjs.html?ctz=CQAgjCAMB0l3BWcMBMcUHYMGZIA4UA2ATmIxAUgoqoQFMBaMMAKACUQNIAWEbbQpx4gUCQVSrcqKXhKjQELADYhu3PHwEUUG-uPBQoLMBhQhCM8GDMXeeOeSrZo2QxIUgAagHslAFwBDAHM6FiDVdU1BNV08WSMAJ3NL

Title	**Hyperlink_Telemetry.PrjPcb**	
Size: A4	Number: **4 out of 7**	Revision: *
Date: 10/26/2023		Sheet of
File: [03]_Valve_Control.SchDoc		Drawn By:

Op-Amp:
V_out = (3k3/10k)*(10-GND)

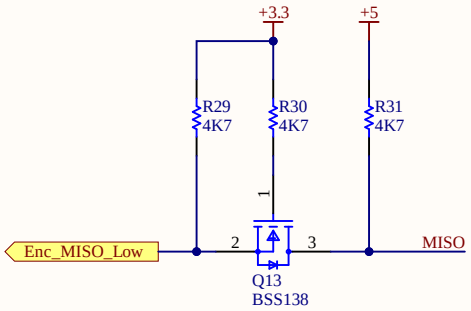
PRESSURE SENSING

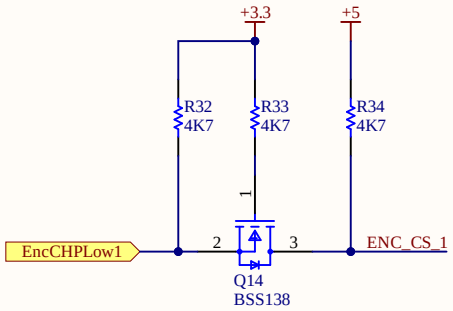


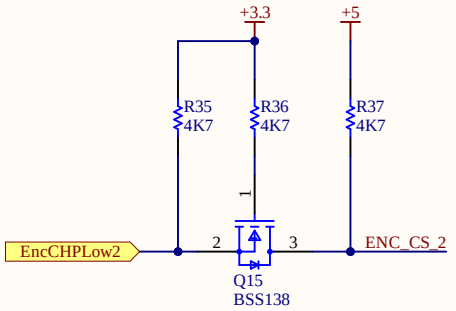
Title	**Hyperlink_Telemetry.PrjPcb**	
Size: A4	Number: **5 out of 7**	Revision: *
Date: 10/26/2023		Sheet of
File: [04]_Pressure_Sensing.SchDoc		Drawn By:

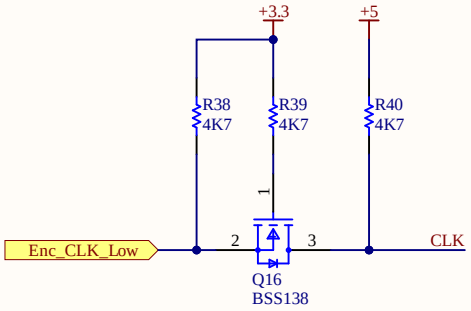
ENCODERS

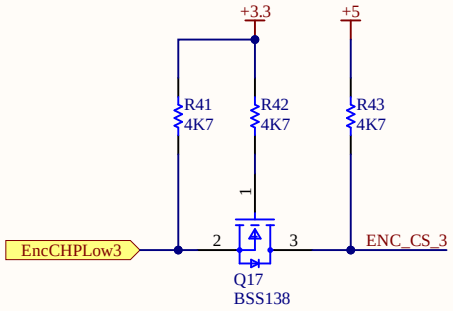
Enc - 5V, CHP,Vss, CLK, DO
Valve - M8 - 24V, GND
Psense - 24V, GND, signal out 10V

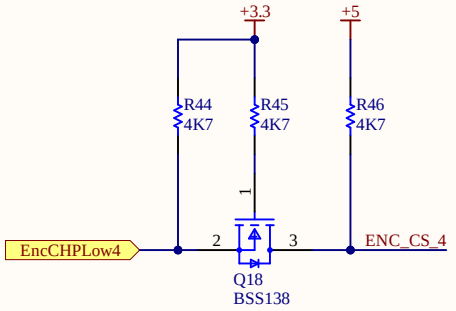


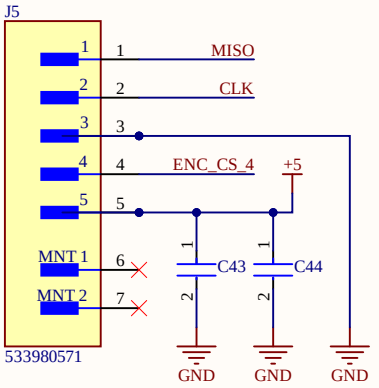


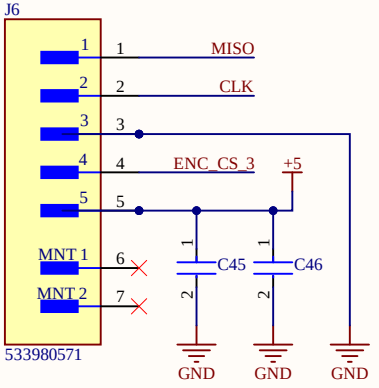


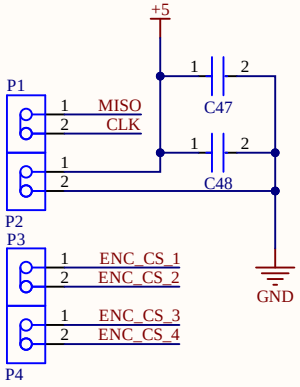




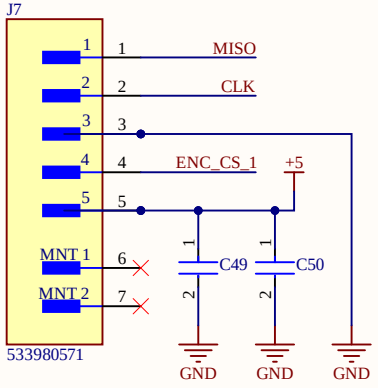


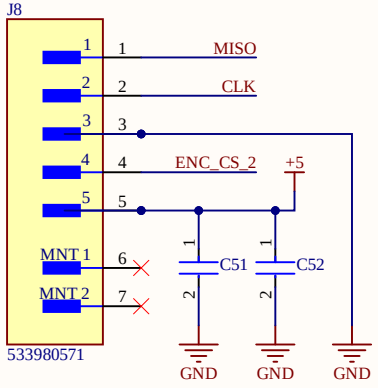






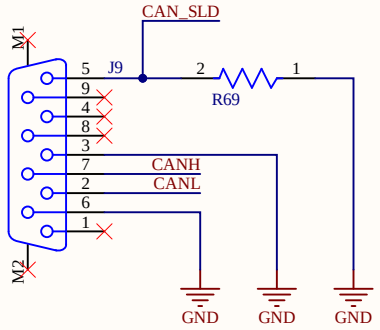
Auxiliary Connectors
Pluggable Terminals

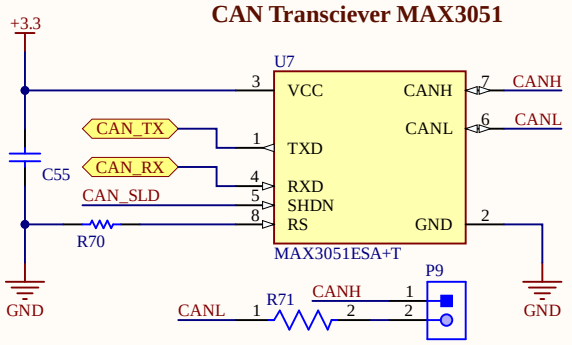


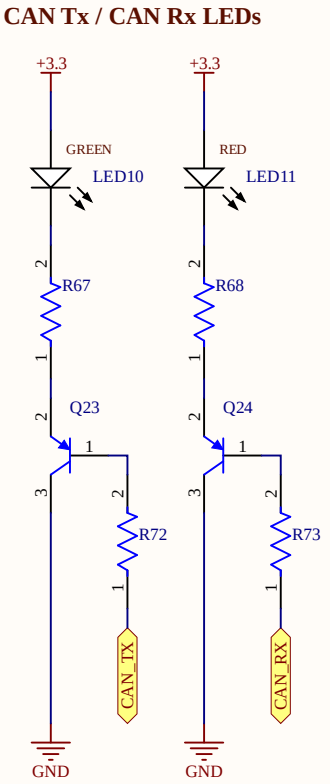


Title: **Hyperlink_Telemetry.PrjPcb**		
Size: A4	Number: **6 out of 7**	Revision: *
Date: 10/26/2023		Sheet of
File: [05]_Encoders.SchDoc		Drawn By:

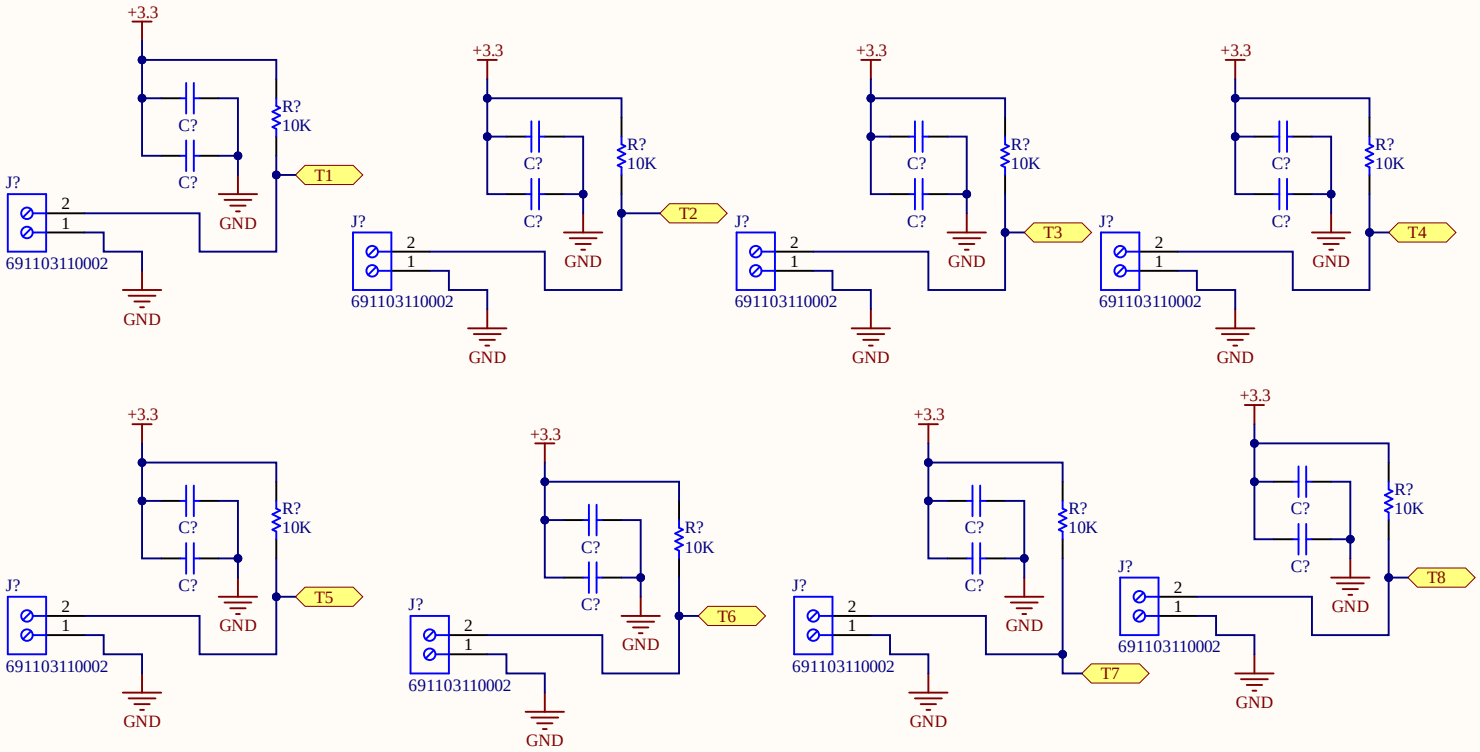
CONNECTIVITY







Title: **Hyperlink_Telemetry.PrjPcb**		
Size: A4	Number: **7 out of 7**	Revision: *
Date: 10/26/2023		Sheet of
File: [06]_Connectivity.SchDoc		Drawn By:



Title		
Size: A	Number:	Revision:
Date: 10/26/2023		Sheet of
File: TemperatureSensors.SchDoc		Drawn By: