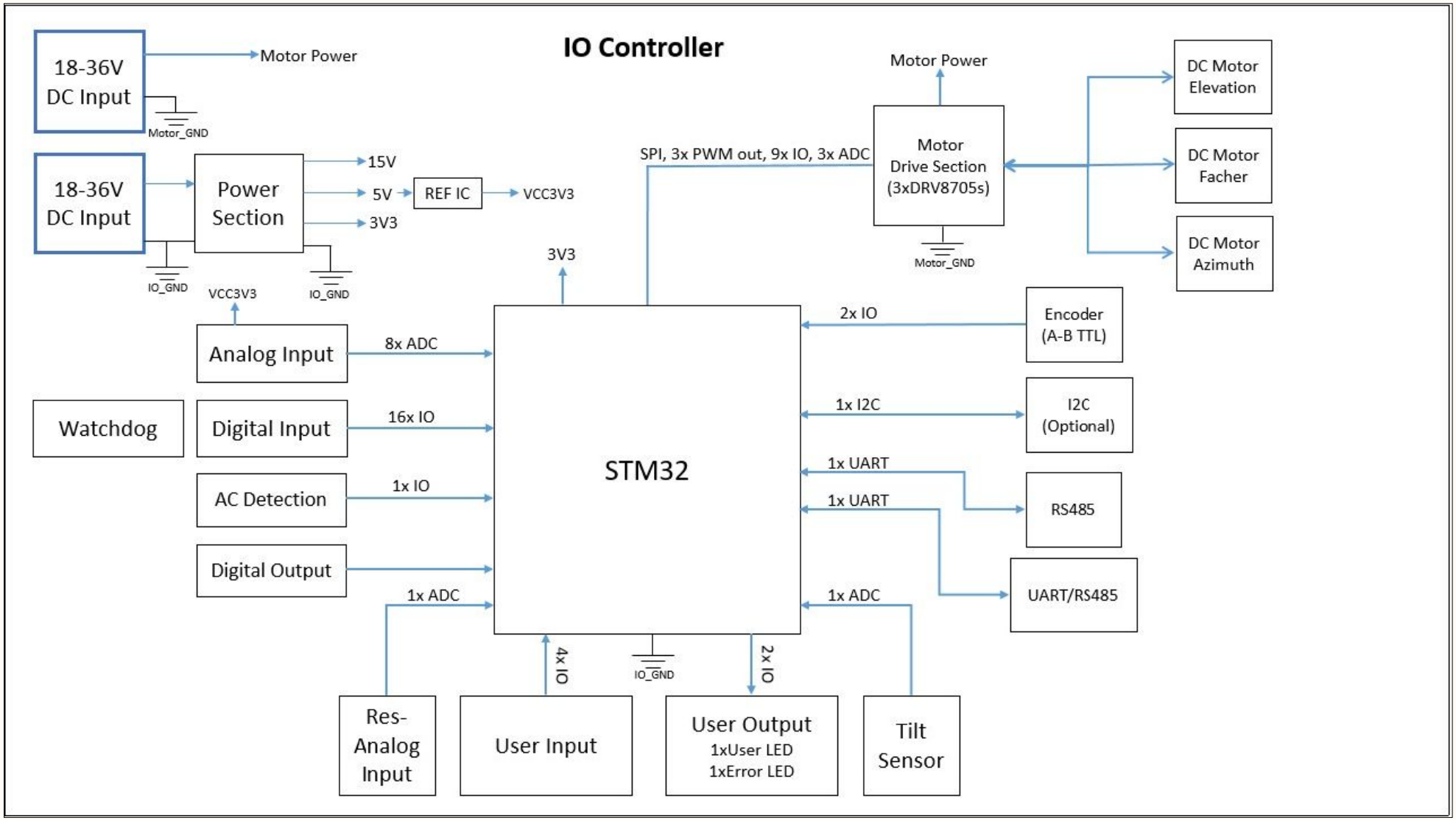
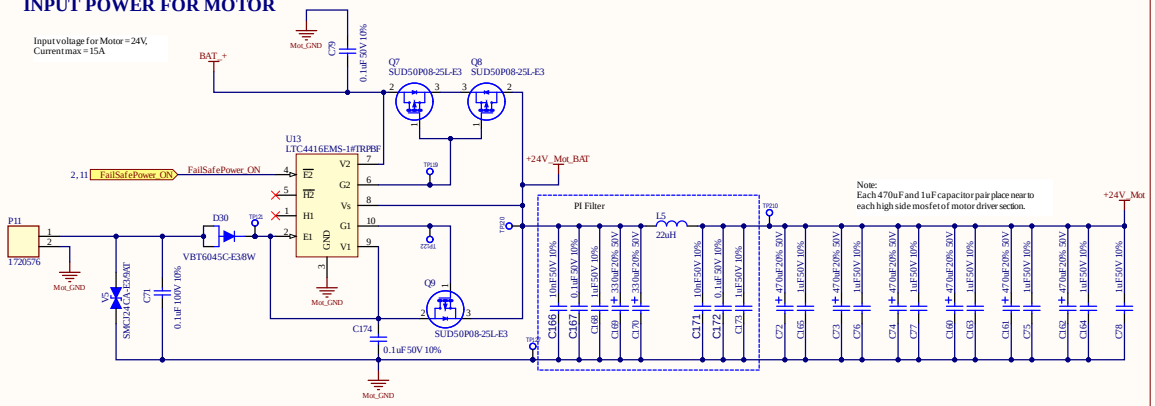


NOTES:

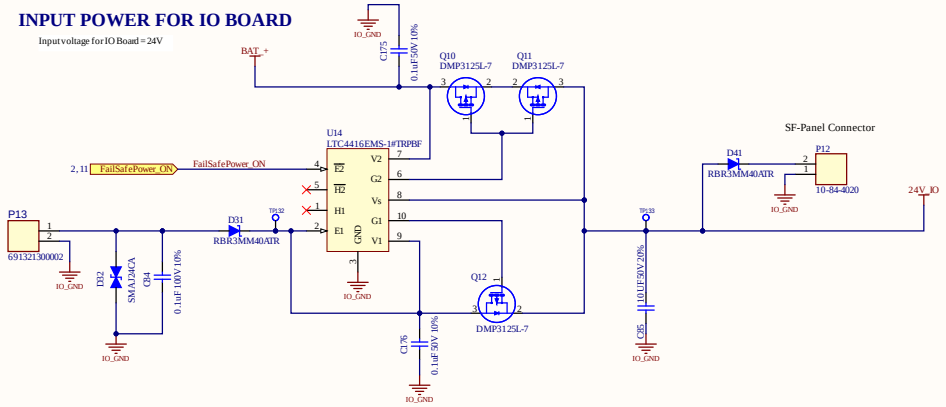
TITLE:	IO Controller
SHEET:	1_BlockDiagram.SchDoc
SIZE	B
NUMBER	105-149700-01
REVISION	3.0.1
DRAWN BY:	SZ
	11:18:24 AM
DATE:	9/12/2023
SHEET	1 OF 12

ACEVIN SOLUTIONS

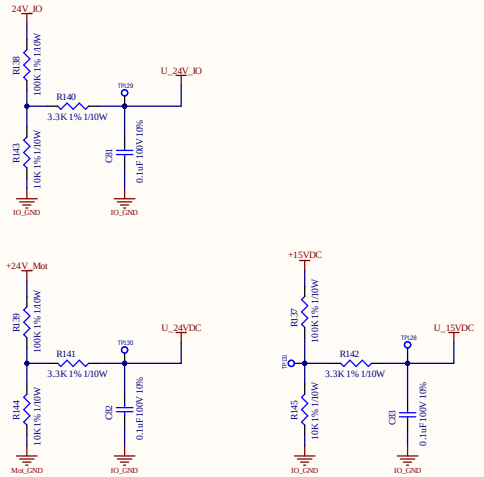
INPUT POWER FOR MOTOR



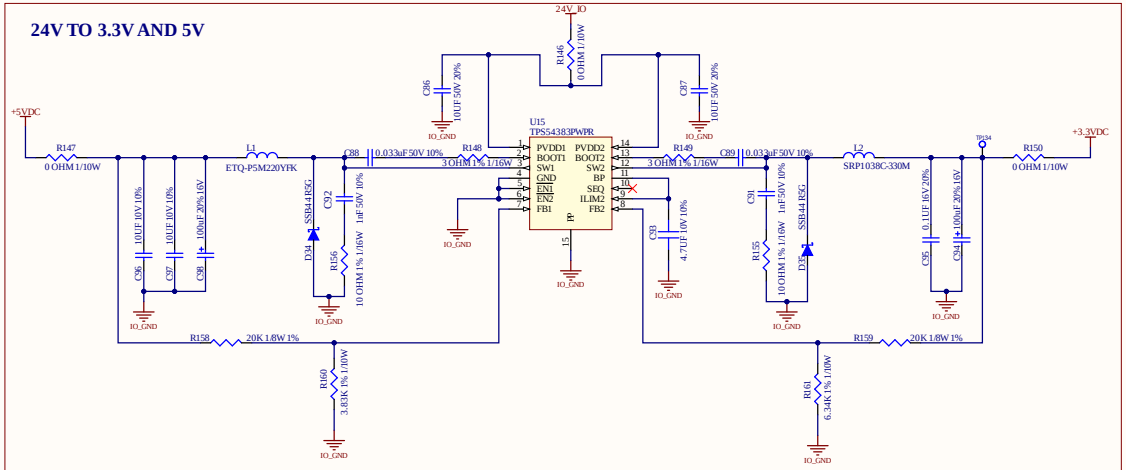
INPUT POWER FOR IO BOARD



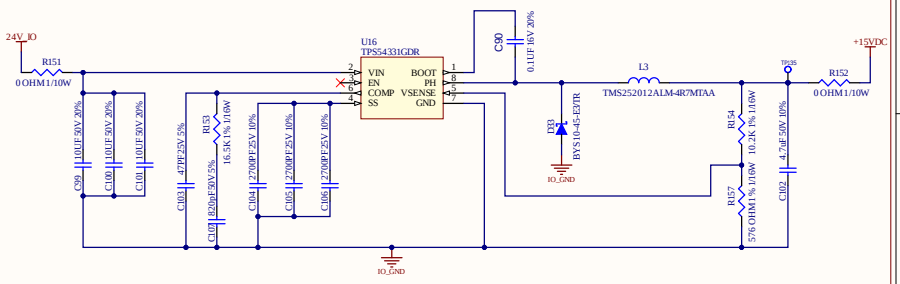
SUPPLY MONITORING



24V TO 3.3V AND 5V



24V TO 15V



NOTES:

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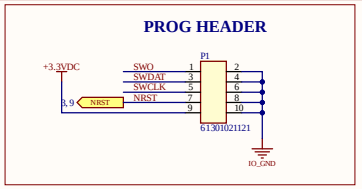
SHEET:	2_PowerSupply.SchDoc
SIZE	B
NUMBER	105-149700-01
REVISION	3.0.1
DRAWN BY:	SZ
	11:18:25 AM
DATE:	9/11/2023
SHEET	2 OF 12

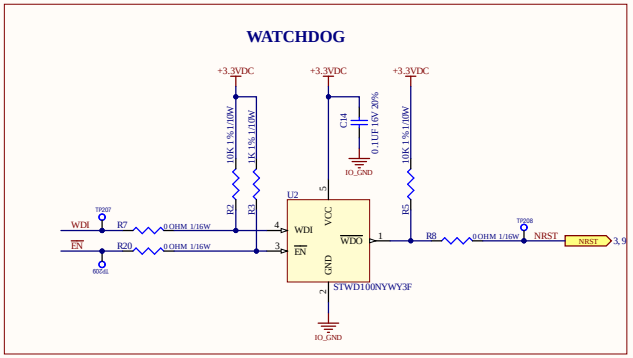
ACEVIN SOLUTIONS

CONTROLLER

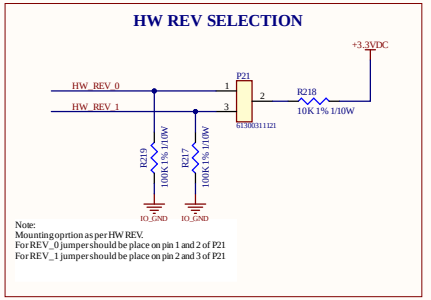
PROG HEADER



WATCHDOG



HW REV SELECTION



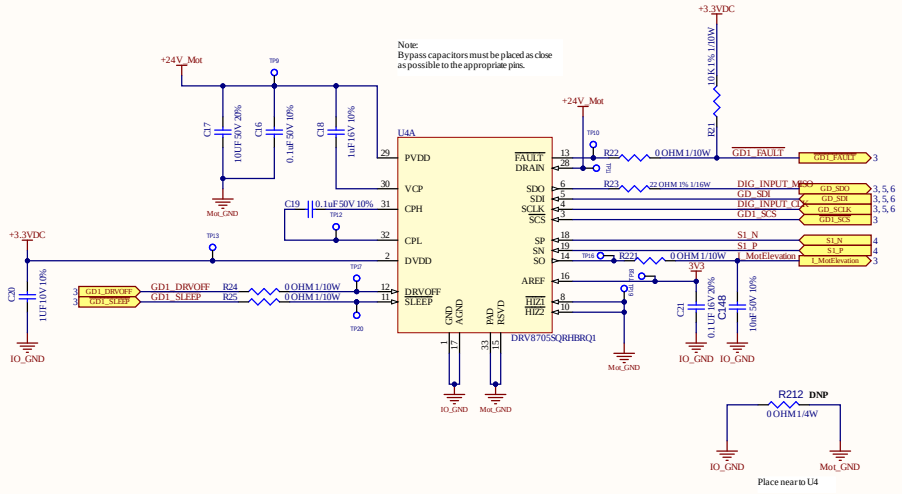
Note:
Decoupling capacitors must be placed as close as possible to the appropriate pins

Note:
BootMode to LOW
R10 not placed!

TITLE:	IO Controller
SHEET:	3_MCU.SchDoc
SIZE	B
NUMBER	105-149700-01
REVISION	3.0.1
DRAWN BY:	SZ
	11:18:25 AM
DATE:	9/11/2023
SHEET	3 OF 12

NOTES:

MOTOR DRIVER SECTION



ELEVATION MOTOR

Note:
DRAIN (pin 28) of Gate driver (U4) should be connected to common point of the high-side MOSFET drains.

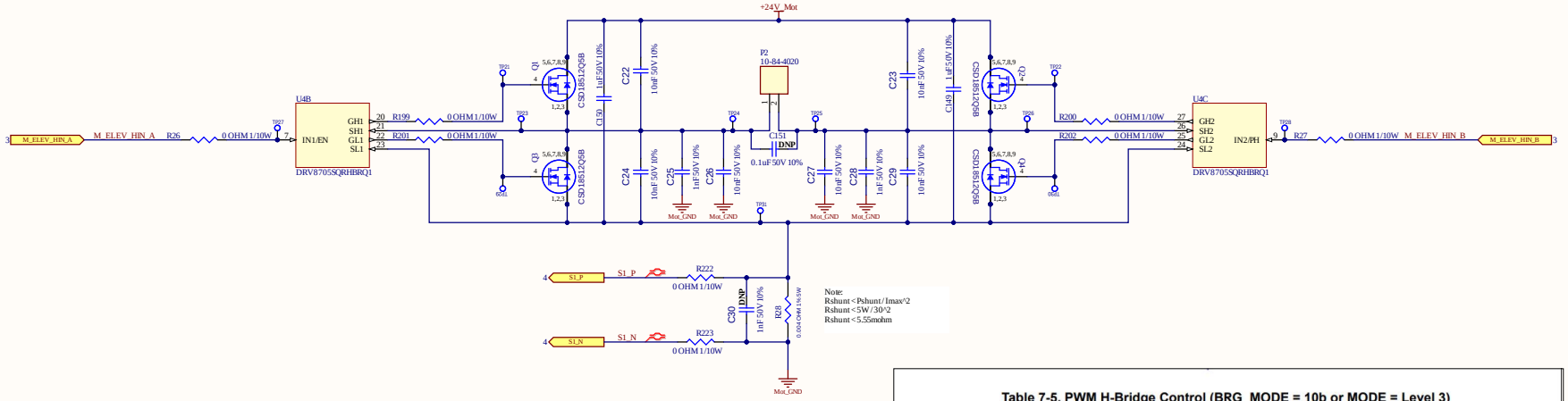
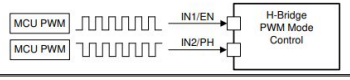


Table 7-5. PWM H-Bridge Control (BRG_MODE = 10b or MODE = Level 3)

IN1/EN	IN2/PH	BRG_FW	GH1	GL1	GH2	GL2	SH1	SH2	DESCRIPTION
0	0	X	L	L	L	L	Z	Z	Diode Freewheel (Coast)
0	1	X	L	H	H	L	L	H	Drive SH2 → SH1 (Reverse)
1	0	X	H	L	L	H	H	L	Drive SH1 → SH2 (Forward)
1	1	0b	L	H	L	H	L	L	Low-Side Active Freewheel
1	1	1b	H	L	H	L	H	H	High-Side Active Freewheel

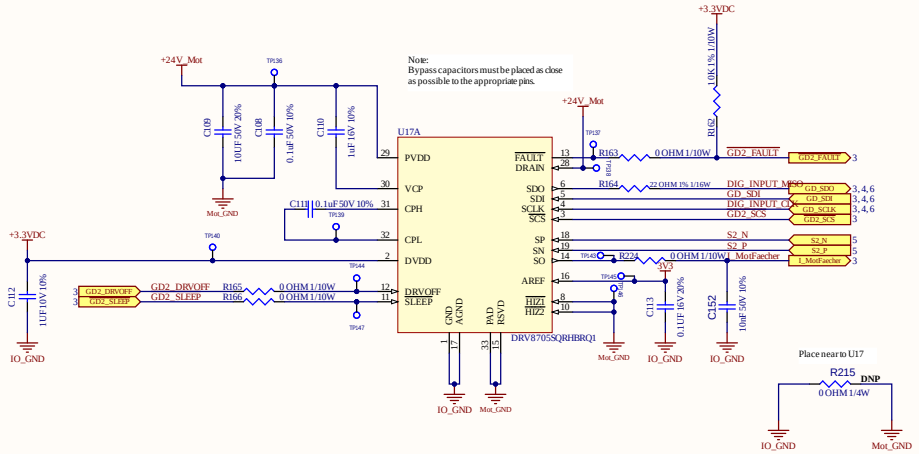


NOTES:

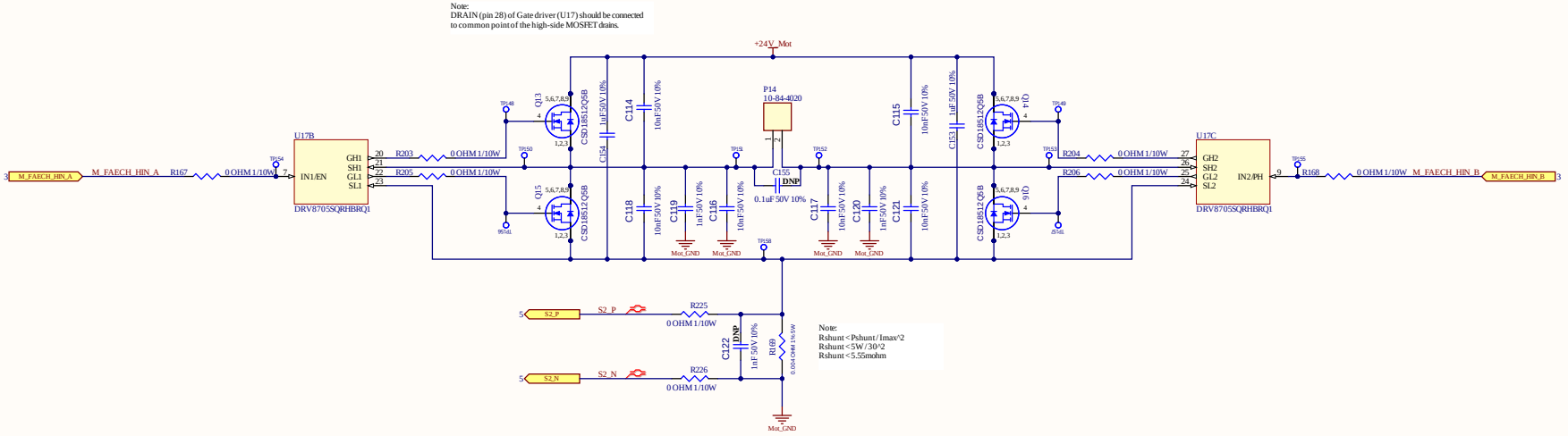
TITLE:	IO Controller
SHEET:	4_ElevationMotor.SchDoc
SIZE	B
NUMBER	105-149700-01
REVISION	3.0.1
DRAWN BY:	SZ
	11:18:26 AM
DATE:	9/11/2023
SHEET	4 OF 12

ACEVIN SOLUTIONS

MOTOR DRIVER SECTION



FACHER MOTOR



TITLE:	IO Controller
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SIZE	B
NUMBER	105-149700-01
REVISION	3.0.1
DRAWN BY:	SZ
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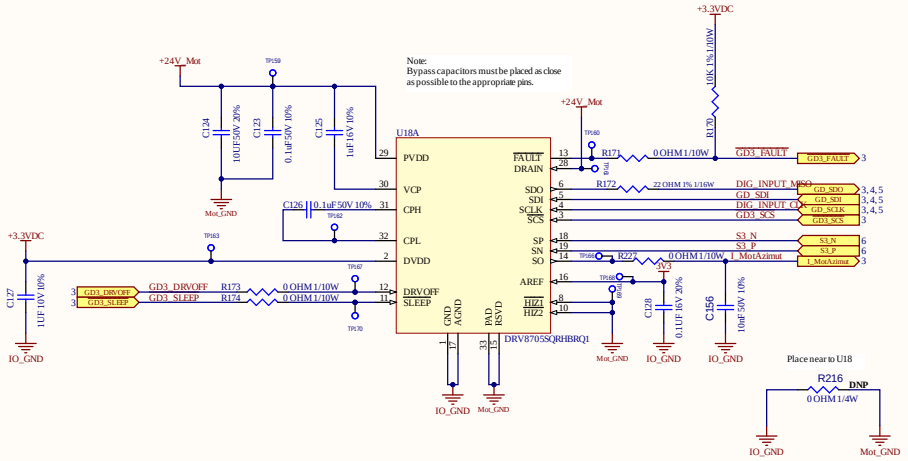
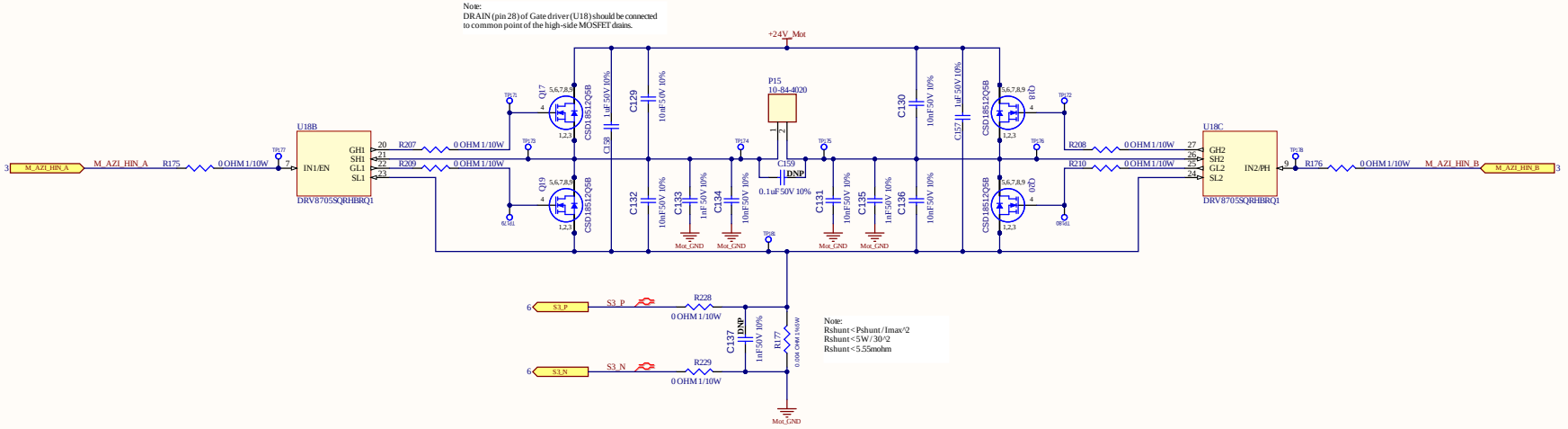
DATE:	9/11/2023
SHEET	5 OF 12

NOTES:

MOTOR DRIVER SECTION



AZIMUT MOTOR



TITLE:	IO Controller
SHEET:	6_AzimutMotor.SchDoc
SIZE	B
NUMBER	105-149700-01
REVISION	3.0.1
DRAWN BY:	SZ
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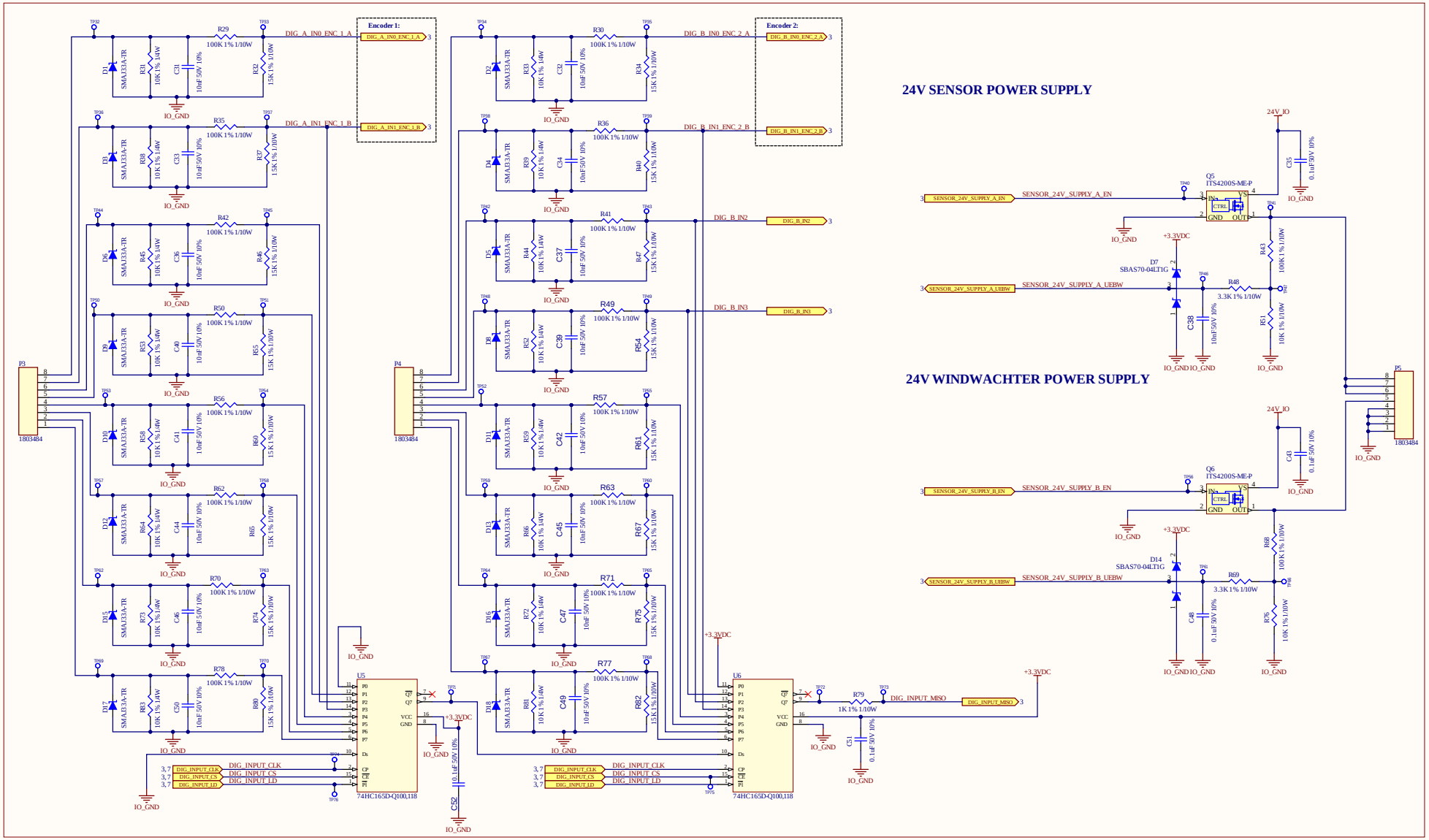
DATE:	9/11/2023
SHEET	6 OF 12

NOTES:

DIGITAL INPUT

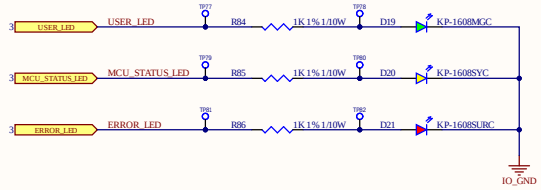


NOTES:

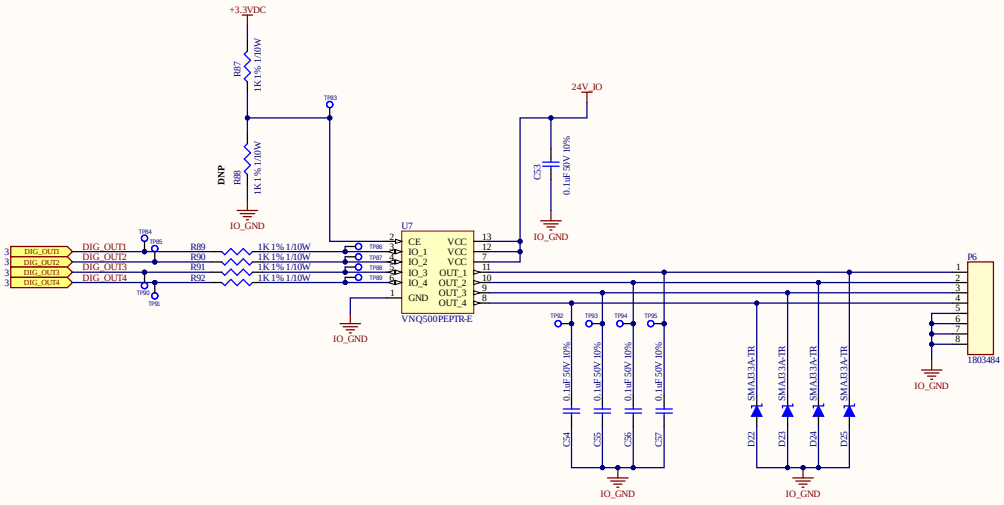
TITLE:	IO Controller
SHEET:	7_DigitalInput.SchDoc
SIZE	B
NUMBER	105-149700-01
REVISION	3.0.1
DRAWN BY:	SZ
	11:18:26 AM
DATE:	9/11/2023
SHEET	7 OF 12

ACEVIN SOLUTIONS

USER OUTPUT



DIGITAL OUTPUT



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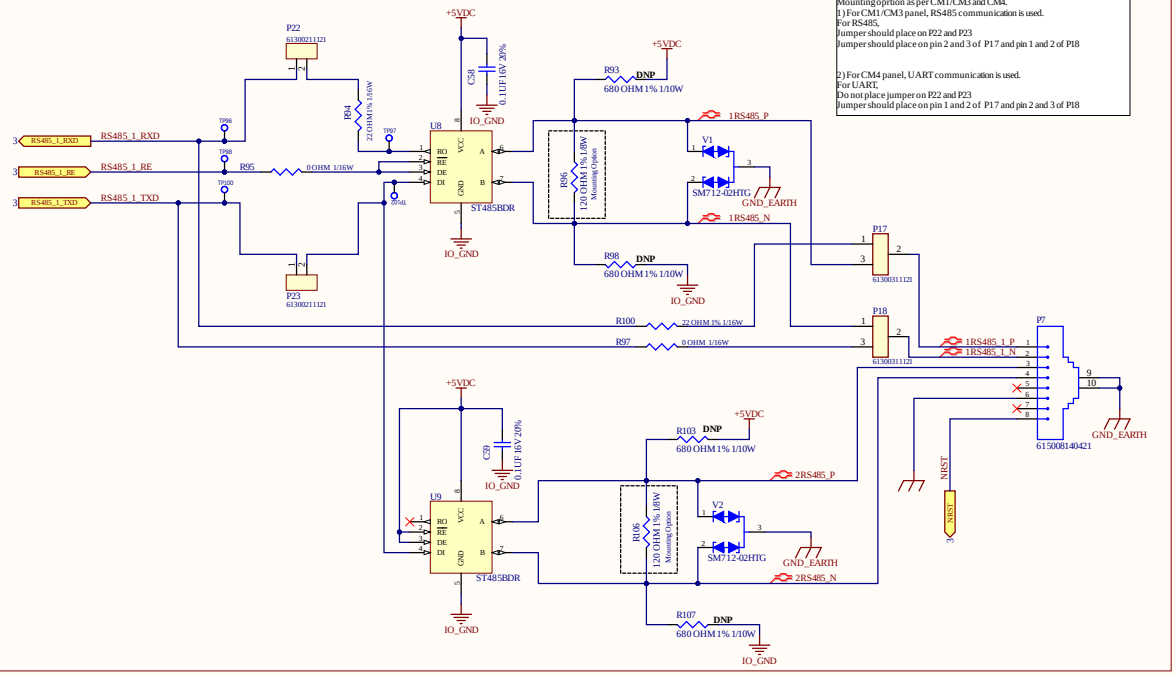
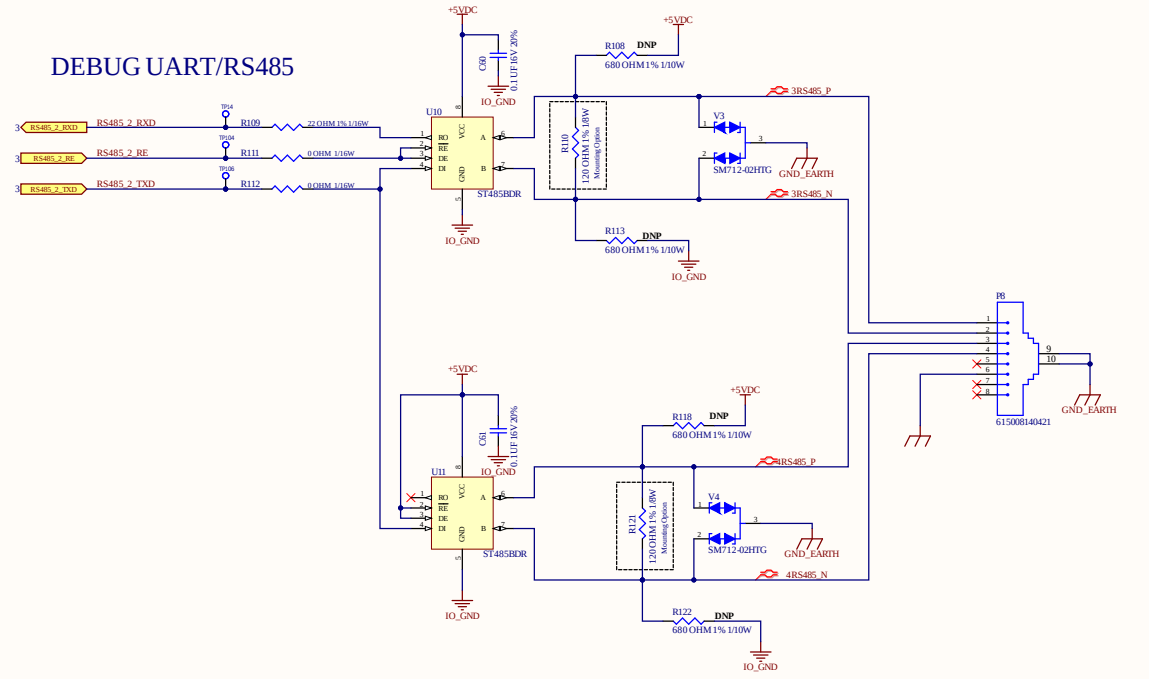
	SHEET: 8_DigitalOutput.SchDoc		
	SIZE: B	NUMBER: 105-149700-01	REVISION: 3.0.1
	DRAWN BY: SZ	11:18:27 AM DATE: 9/11/2023	SHEET 8 OF 12

NOTES:

PANEL UART/RS485

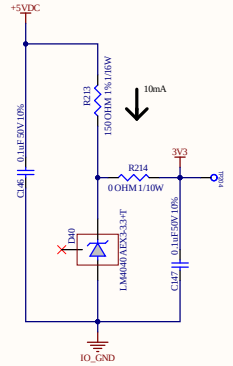


DEBUG UART/RS485



I2C OPTIONAL

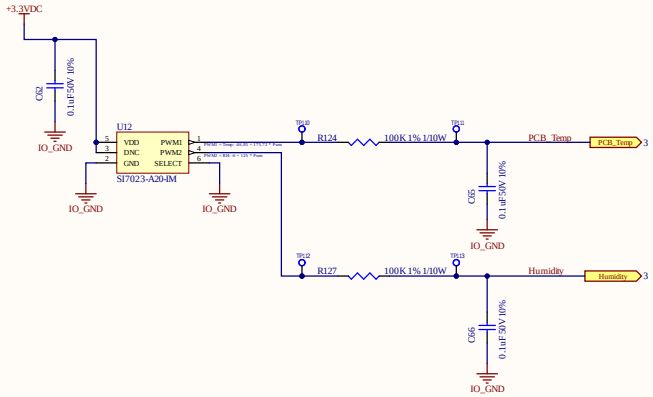
5V TO 3V3



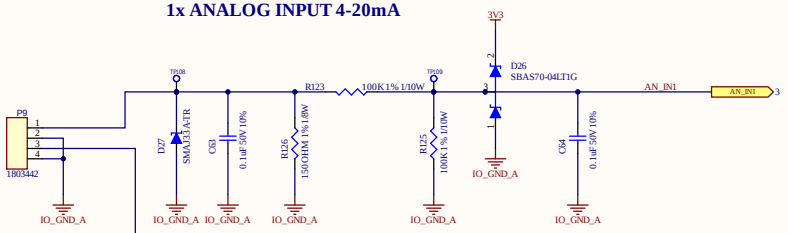
NOTES:

TITLE: IO Controller			ACEVIN SOLUTIONS
SHEET: 9_BusPheripherie.SchDoc			
SIZE: B	NUMBER: 105-149700-01	REVISION: 3.0.1	
DRAWN BY: SZ	11:18:27 AM	DATE: 9/11/2023	SHEET 9 OF 12

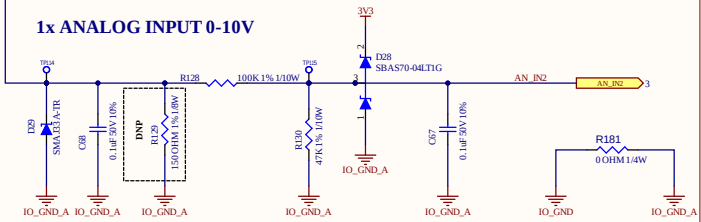
PCB-TEMP, HUMIDITY



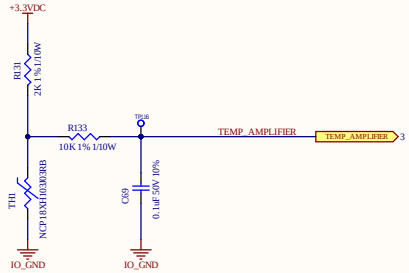
1x ANALOG INPUT 4-20mA



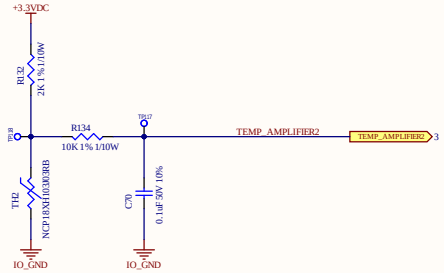
1x ANALOG INPUT 0-10V



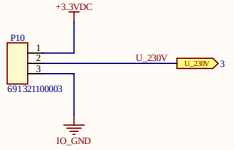
AMPLIFIER TEMP 1



AMPLIFIER TEMP 2



230V MONITORING



NOTES:

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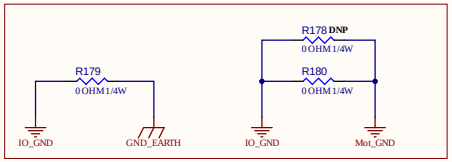
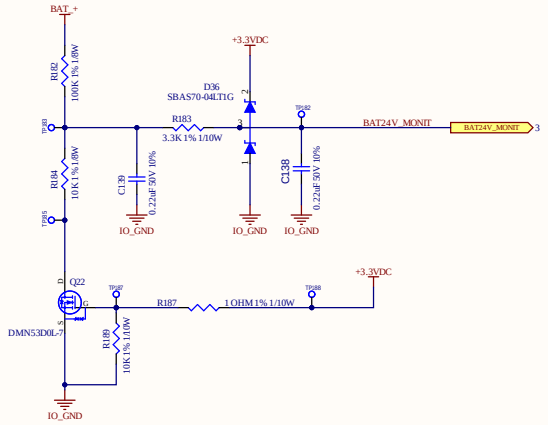
SHEET:	10_AnalogInput.SchDoc
SIZE	B
NUMBER	105-149700-01
REVISION	3.0.1
DRAWN BY:	SZ
	11:18:27 AM
DATE:	9/11/2023
SHEET	10 OF 12

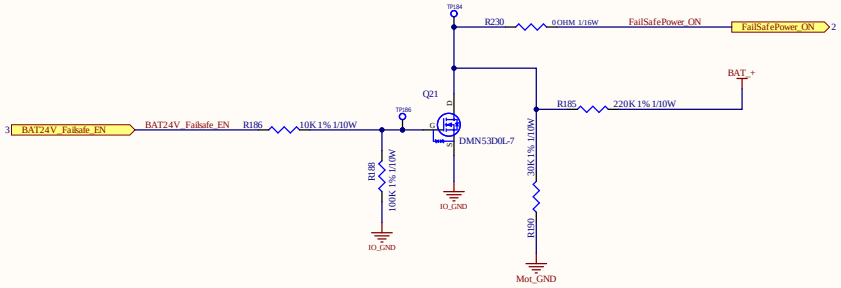
ACEVIN SOLUTIONS



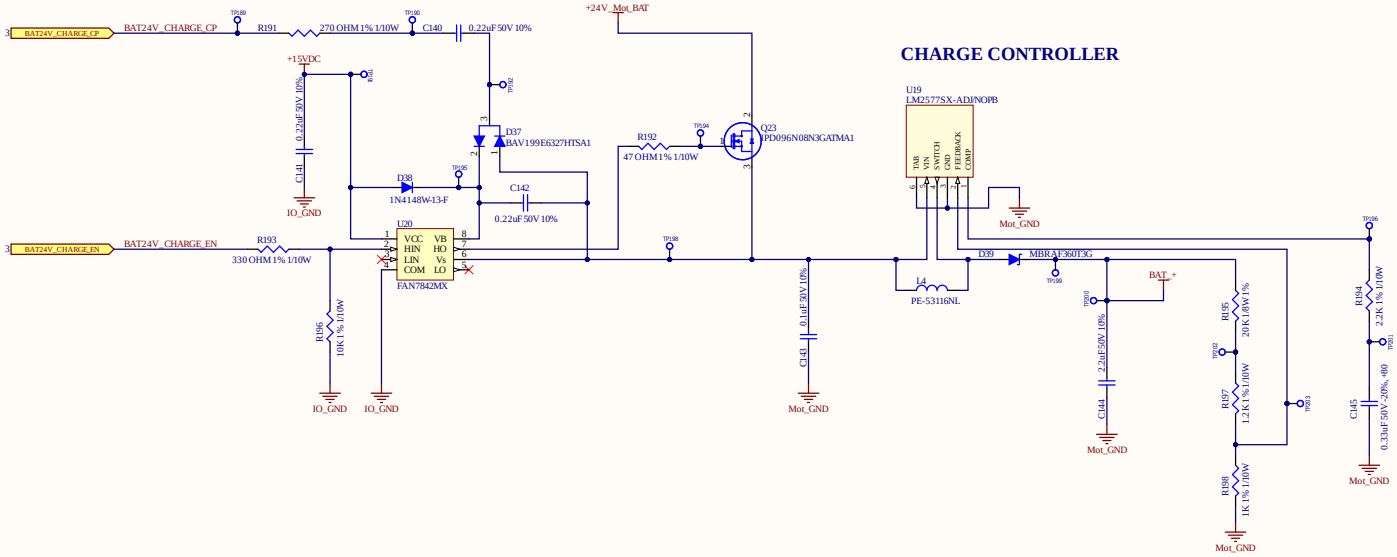
BATTERY MONITORING



FAIL-SAFE POWER ON/OFF

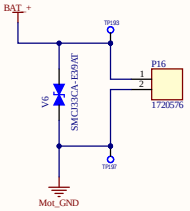


CHARGING ON/OFF

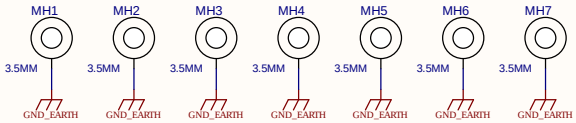


CHARGE CONTROLLER

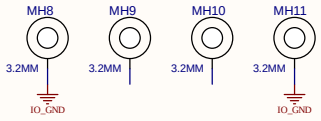
BATTERY INPUT



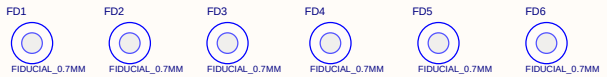
MOUNTING HOLES FOR IO BOARD



MOUNTING HOLES FOR SF-PANEL BOARD



FIDUCIALS



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TITLE:	IO Controller
SHEET:	11_BackupBattery.SchDoc
SIZE	B
NUMBER	105-149700-01
REVISION	3.0.1
DRAWN BY:	SZ
	11:18:27 AM
DATE:	9/11/2023
SHEET	11 OF 12

REVISION 1.0 CHANGES

Rev 1.0
08/09/2021

1) In supply section, 24V supply is added for IO board.

2) Added 24V to 3.3V and 5V converter section.

3) Added 24V to 15V converter section.

4) Added J4 connector for 230V monitoring.

REVISION 3.0 CHANGES

Rev 3.0.0
18/07/2022

1) Added new backup battery control circuit.

2) Changed gate driver IC DRV8301/03 to DRV8705s and removed extra driver sections.

3) Added jumper option for the RS485 and UART can be used depending upon the type of SF panel board used.

4) Added hardware watchdog with enable/disable option

5) Remove CAN section

6)Added hardware revision selection circuit

Rev 3.0.1
22/05/2023

1) Added headers P22 and P23 to isolate the RS485 and UART interface

2) Removed headers J1, P19 and P20 from debug UART section

3) Changed headers GRPB031VWTC-RC (1.27mm) to 61300311121 (2.54mm)

4) Removed VREF of U1 from +3.3VDC and connect to 3V3 supply

5) Added diode D41

NOTES:

TITLE: IO Controller			ACEVIN SOLUTIONS
SHEET: 12_Revision Changes.SchDoc			
SIZE: B	NUMBER: 105-149700-01	REVISION: 3.0.1	
DRAWN BY: SZ	11:18:28 AM	DATE: 9/11/2023	SHEET 12 OF 12