Teensy 4.0 Pins	Pin Type	In or Out?	Connection	Color	Description
GND	GND	IN	SR Ground	Black	Will need to be connected to slip ring ground
0	Serial 1	IN	SR RX		Receives Information for Master Over UART Communication
1	Serial 1	OUT	SR TX		Transmits Information to Master Over UART Communication
2	PWM	OUT	J5 Enable		To J5 Stepper Driver
3	PWM	OUT	J5 DIR		To J5 Stepper Driver
4	PWM	OUT	J5 STEP		To J5 Stepper Driver
5	PWM	OUT	J5 CLK		To J5 Stepper Driver
6	PWM	OUT			SPARE
7	Serial 2	IN	J5 RX		Communication to J5 Stepper Driver
8	Serial 2	OUT	J5 TX		Communication to J5 Stepper Driver
9	PWM	OUT	J6 Enable		To J6 Stepper Driver
10	PWM	OUT	J6 DIR		To J6 Stepper Driver
11	PWM	OUT	J6 STEP		To J6 Stepper Driver
12	PWM	OUT	J6 CLK		To J6 Stepper Driver
13	PWM	OUT	On Board LED		Will set to be ON/Blinking when board is running properly, solid when fault occurs.
14	Serial 3	IN	J6 RX		Communication to J6 Stepper Driver
15	Serial 3	OUT	J6 TX		Communication to J6 Stepper Driver
16	I2C 0	IN	J5 SCL1		J5 I2C Encoder Bus
17	I2C 0	IN	J5 SDA1		J5 I2C Encoder Bus
18	I2C 1	IN	J6 SCL0		J6 I2C Encoder Bus
19	I2C 1	IN	J6 SDA0		J6 I2C Encoder Bus
20	Analog	IN			SPARE
21	Analog	IN			SPARE
22	PWM	OUT	Servo Output 1		EoAT Servo Output
23	PWM	OUT	Servo Output 2		EoAT Servo Output
3.3 V	3.3 V	OUT	3.3 V		3.3V Connection for x2 magnetic encoders (AS5600), IO power for x2 stepper drivers (TMC 2209)
GND	GND	IN	SR Ground	Black	Will need to be connected to slip ring ground
Vin	GND	IN	SR 5VDC	Green	Powers the Teensy and can be used for future servos

J5 - TMC 2209 Stepper Driver	Pin Type	In or Out?	Connection	Color	Description
0	EN		TEENSY PIN 2		
1	MS1				
2	MS2				
3	TX		TEENSY PIN 7		
4	RX		TEENSY PIN 8		
5	CLK		TEENSY PIN 5		
6	STEP		TEENSY PIN 4		
7	DIR		TEENSY PIN 3		
8	VM		SR 24 VDC		Slip Ring 24V supply
9	GND		SR GND		Will need to be connected to slip ring ground
10	M2B		Stepper		
11	M2A		Stepper		
12	M1A		Stepper		
13	M1B		Stepper		
14	VIO		3.3 V		Supplied from Teensy 4.0
15	GND		SR GND		Will need to be connected to slip ring ground

J6 - TMC 2209 Stepper Driver	Pin Type	In or Out?	Connection	Color	Description
0	EN		TEENSY PIN 9		
1	MS1				
2	MS2				
3	TX		TEENSY PIN 14		
4	RX		TEENSY PIN 15		
5	CLK		TEENSY PIN 12		
6	STEP		TEENSY PIN 11		
7	DIR		TEENSY PIN 10		
8	VM		SR 24 VDC		Slip Ring 24V supply
9	GND		SR GND		Will need to be connected to slip ring ground
10	M2B		Stepper		
11	M2A		Stepper		
12	M1A		Stepper		
13	M1B		Stepper		
14	VIO		3.3 V		Supplied from Teensy 4.0
15	GND		SR GND		Will need to be connected to slip ring ground

Slip Ring 24 VDC Power Rail	Pin Type	Description
0	24 V	J5 Stepper Driver
1	24 V	J6 Stepper Driver
2	24 V	Fan 1
3	24 V	Fan 2
4	24 V	24V Spare 1
5	24 V	24V Spare 2

Slip Ring Ground Rail	Pin Type	Description
0	Ground	J5 Stepper Driver
1	Ground	J6 Stepper Driver
2	Ground	Fan 1
3	Ground	Fan 2
4	Ground	24 V Spare 1
5	Ground	24 V Spare 2
6	Ground	J5 Encoder (AS5600)
7	Ground	J6 Encoder (AS5600)
8	Ground	Teensy 4.0 GND 1
9	Ground	Teensy 4.0 GND 2
10	Ground	Servo 1
11	Ground	Servo 2
12	Ground	SR Black Wire

3.3 VDC IO Power	Pin Type	Description
0	3.3 V IN	J5 Stepper Driver
1	3.3 V OUT	J6 Stepper Driver
2	3.3 V OUT	Fan 1
3	3.3 V OUT	Fan 2
4	3.3 V OUT	24V Spare 1
5	3.3 V OUT	24V Spare 2

Servo Connection 1		Servo Connection 2	
Ground	GND	Ground	GND
Signal	TEENSY PIN 22	Signal	TEENSY PIN 23
Power	3.3 V	Power	3.3 V