

out of the **B** **X**

SADI 2.X Specifications

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Prerequisites

The SADI is a USB based data acquisition platform. For the SADI to be able to communicate with a computer [FTDI D2XX drivers](#) must be installed. A special note to Mac users, please consult [this document](#) for further details about installing these drivers on that platform.

Electrical Specifications

Table 1 Electrical Specifications

Parameter	Min	Nom	Max	Unit
Idle Current		~70		mA
Analog Input Range	-10		10	V
Analog Output Range	0.00		5.00	V
REF Voltage		4.096		V
REF Current		~15		mA

Device Pinout

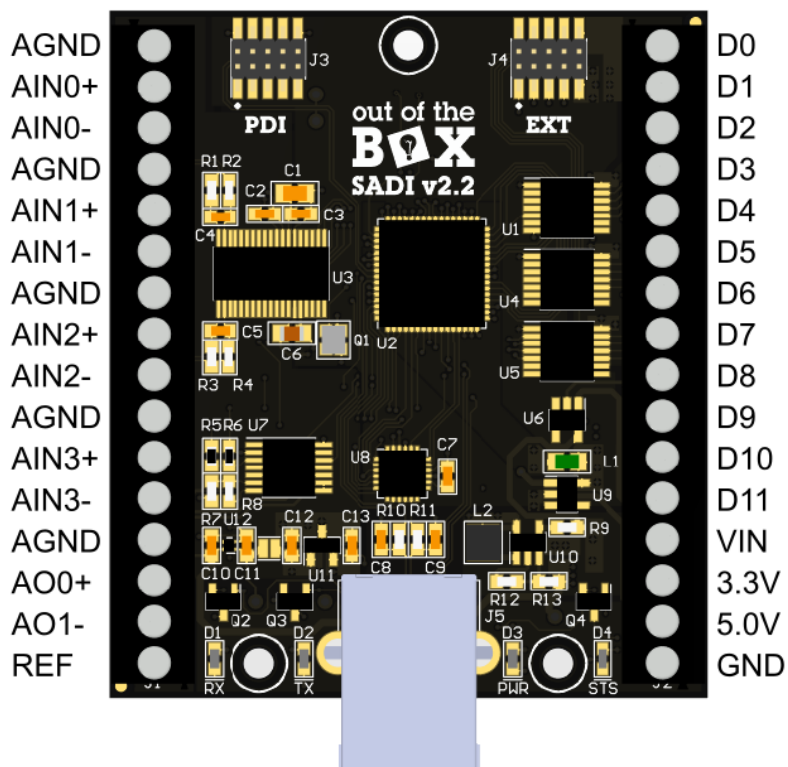


Table 2 Digital Pin Function Matrix

Digital Pin	Digital Input	Digital Output	Actuator Signal	ENC PLOC 0	ENC PLOC 1	ENC PLOC 2	ENC PLOC 3	ENC PLOC 4	ENC PLOC 5	ENC PLOC 6*	ENC PLOC 8	ENC PLOC 9	ENC PLOC 10*
D0	Yes	Yes	SERVO0	CHA									
D1	Yes	Yes	SERVO1	CHB	CHA								
D2	Yes	Yes	SERVO2	INDEX	CHB	CHA							
D3	Yes	Yes	SERVO3		INDEX	CHB	CHA						
D4	Yes	Yes				INDEX	CHB	CHA					
D5	Yes	Yes					INDEX	CHB	CHA				
D6	Yes	Yes						INDEX	CHB	CHA			
D7	Yes	Yes							INDEX	CHB			
D8	Yes	Yes	MOTOR0								CHA		
D9	Yes	Yes	MOTOR1								CHB	CHA	
D10	Yes	Yes	MOTOR2								INDEX	CHB	CHA
D11	Yes	Yes	MOTOR3									INDEX	CHB

*ENC PLOC 6 and 10 do not support INDEX signals

Features

The SADI contains both analog inputs, analog outputs, and digital io with some pins having special features.

Analog inputs

SADI has 4 differential analog input channels with 14-bit resolution. The input range of the analog inputs is $\pm 10V$. The analog inputs also have several gain settings in order to measure smaller voltages without losing resolution. SADI supports 1x, 2x, 4x, 8x, and 16x gains.

Analog Outputs

SADI has 2 single ended analog outputs with 12-bit resolution. These output range 0-5.0V.

Digital i/o

SADI has 12 digital pins. All these pins can be either inputs or outputs. There are also special functions available for certain pins. Reference the [Digital Pin Function Matrix](#) for details.

Quadrature Encoder Interface

SADI supports up to 2 quadrature encoders. Encoders can be configured as either incremental 2-3 pin or absolute 3 pin.

Servo PCM

SADI supports 4 dedicated hobby servo outputs at 50Hz. These pins send out PCM (Pulse Code Modulation) signals used to set servo positions.

Motor PWM

SADI supports 4 dedicated PWM outputs used for controlling DC motors and other PWM devices. 0 to %100 duty cycle is controllable with 10-bit precision.