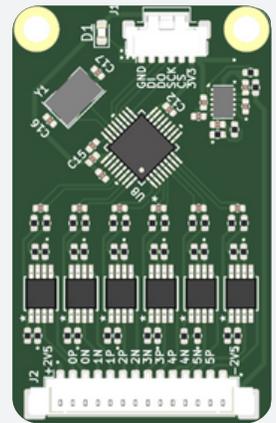


6 Channel, 24-bit

Data Acquisition Board

The Data Acquisition System (DAQ) integrates a 24-bit, 6-channel delta-sigma ADC (Texas Instruments ADS131M06) with external signal amplification and an anti-aliasing filter. A charge pump generates bipolar supply voltages from a single input to power bridge-based sensors. The DAQ is optimized for load cell measurements (SRI M3564F) for the Open-Source Leg and can also be used for high-resolution measurements using bridge-based sensors.



DAQ Board Illustration



Data Acquisition

ADC Architecture	Delta-Sigma
Interface	SPI
No. of Channels	6
Anti-Aliasing Filter Cutoff (-3 dB)	8 kHz
Gain – Stage 1 (Fixed)	Channels 1-3: 34, Channels 4-6: 151
Gain – Stage 2 (<i>Programmable</i>)	1 – 128
Resolution	24 bits
Sampling Rate	250 Hz – 32 kHz

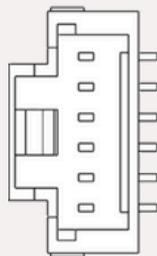
Power

Operating Voltage	2.7 V – 3.6 V Output
Voltage (Bipolar)	$\pm 2.5\text{ V}$
Max. Output Current	250 mA

Dimensions & Connectors

Length	42 mm
Width	26 mm
Mounting Hole	2.5 mm
SPI Connector	Molex Pico-Clasp – 6 Pin
Loadcell Connector	Molex Pico-Blade – 14 Pin

Pinout



1	3V3
2	CS
3	SCLK
4	DOUT
5	DIN
6	GND



	DAQ	Loadcell (SRI M3564E/F)
1	+2.5 V	EXC+
2	CH 0P	CH 1+
3	CH 0N	CH 1-
4	CH 1N	CH 2+
5	CH 1P	CH 2-
6	CH 2P	CH 3+
7	CH 2N	CH 3-
8	CH 3N	CH 4+
9	CH 3P	CH 4-
10	CH 4P	CH 5+
11	CH 4N	CH 5-
12	CH 5N	CH 6+
13	CH 5P	CH 6-
14	-2.5 V	EXC -