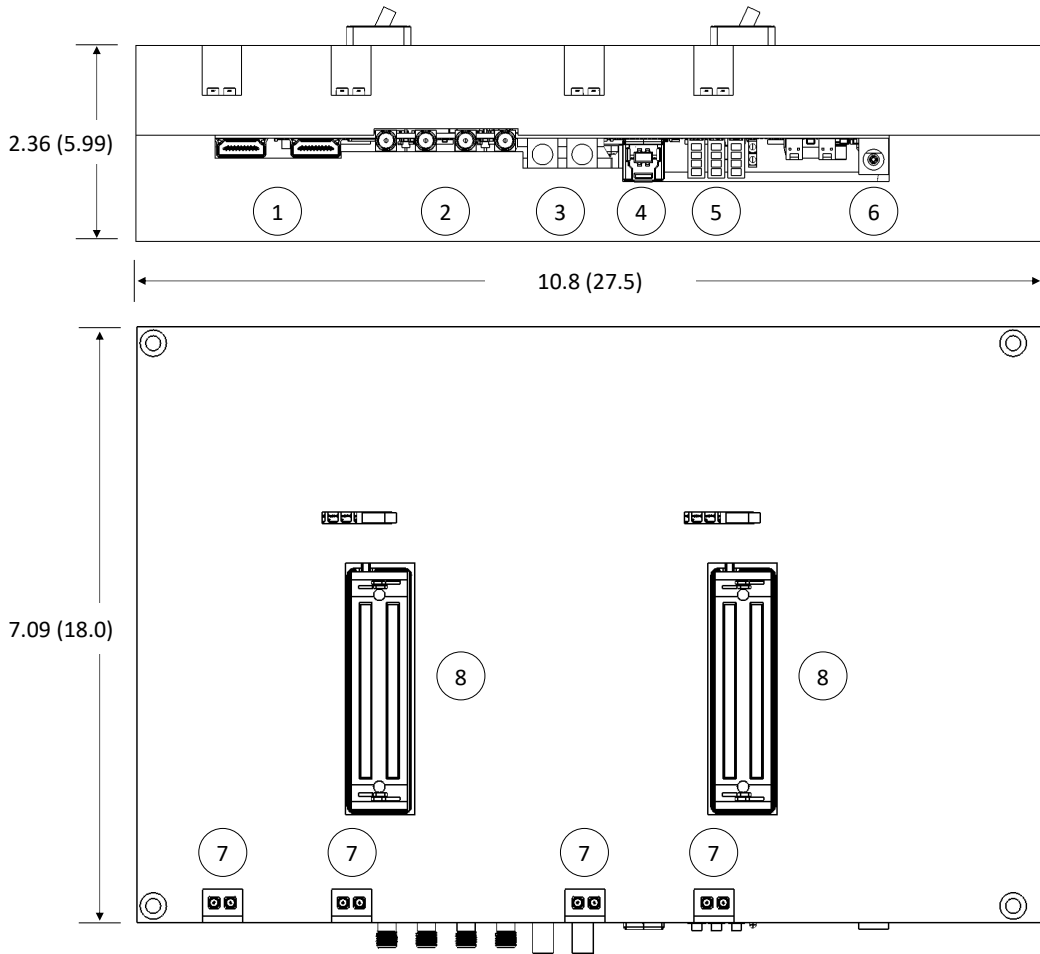


Compact, High Channel Count Data Acquisition Unit with 256 Analog-to-Digital Converters (ADC) and Integrated Preamplifiers



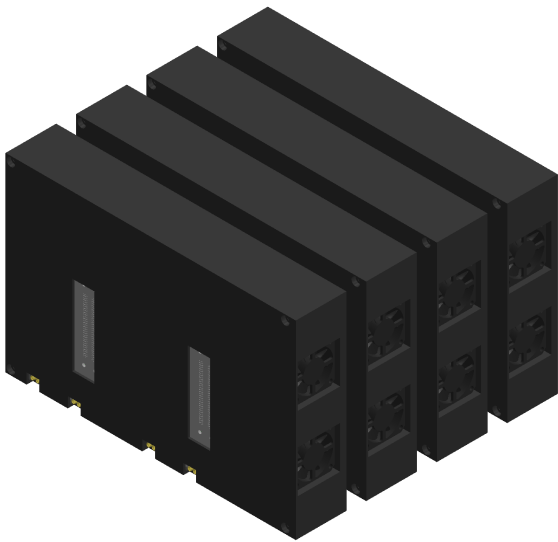
- Compact housing and customizable input connectors for easy instrument integration
- Streaming ADCs for continuous data acquisition (no buffering), faster transmission and up to 50 fps
- Internal trigger generator allows external device triggering at defined frequencies. Continuous mode sends trigger signal as soon as previous acquisition is complete (highest frame rate)
- Up to 4 units operating in parallel for a total of 1024-ch
- Integrated AFE amplifier chips with digitally controlled gain
- Compact 2 x 20 mm preamps per channel
- Optical and electrical trigger inputs
- Open SDK and access to raw RF data
- Optimized for photoacoustic imaging as the highest priority

Channels	Channels per ADC ⁽¹⁾	256	(1) Up to 4 boards can be operated in parallel
	Preamps	2	
	Channels per Preamp	128	(2) Low Pass programmable filters available
ADC	Programmable Gain	12 to 51 dB	(3) 38.5 MSPS default. Up to 40 MSPS with custom FPGA chip
	Bandwidth @ -3 dB ⁽²⁾	50 kHz to 12.5 MHz	(4) Per frame per channel
	Resolution	12-bit	(5) Measured with 50Ω load. Actual gain will depend on the probe capacitance (typical channel gain mismatch < 1 dB). Crosstalk is ≤ -50 dB (might be higher with custom connector). In order to archive ≤ -50 dB crosstalk custom connector must have signal and ground pins altered per channel or in checkerboard order.
	Sampling Rate ⁽³⁾	38 to 40 MSPS	
	Max Trigger / Frame Rate	50 Hz / fps	
	Max Points ⁽⁴⁾	4096	
Preamp	Amplification ⁽⁵⁾	40 dB	(6) HiZ is the best to minimize noise at high frequencies.
	Input Impedance ⁽⁶⁾	39 kΩ	
	Output Impedance	50 Ω	(7) Measured using signal generator and oscilloscope with 50Ω input.
	Bandwidth @ -3 / -6 dB ⁽⁷⁾	25/40 kHz to 30/35 MHz	



1. Synchronization ports for connecting up to four LEGION DAQ-256 in parallel
2. Two sets of programmable electrical trigger input and output (isolated SMA connectors)
3. Two optical trigger inputs for connecting 2 mm patch fibers allow precise triggering from the end-user's pulsed lasers
4. USB 3.0 port for high data transmission to end-user or PhotoSound provided computer
5. Status and diagnostic LEDs
6. 12VDC 2.5A barrel 2.35 x 0.7 mm power connector (power supply included)
7. MMCX analog IO connectors for preamplifier testing (2 extra preamplifier channels per board not wired to ADC).
8. Medical grade Cannon QLC-260 probe input connectors with signal and ground pins for each channel to minimize crosstalk (pinout map available upon request). **Custom connectors and pin mapping to match existing third-party probes can be substituted in place of default connectors.**

All dimensions approximate in inches (cm).



Computer* (optional)	Software
4+ Core i7 Processor Nvidia Graphics Card for CUDA only 16+ GB DDR4 Memory 500+ GB PCIe Solid-State Drive Windows 10 64-bit	Windows 7/10 64-bit drivers Standalone DAQ Application Software Development Kit (LabView) *.tdms data output

* End-user or PhotoSound provided

Up to four LEGION DAQ256 can be connected in parallel to offer an unprecedented number of channels (1024 total)! Connect the units together yourself or have PhotoSound do it for you by connecting units together in a compact housing with integrated computer (schematic for conceptual purposes only).

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All specifications are subject to change without notice.

LEGION DAQ256 is classified EAR99 and does not require an export license.

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