PhotoSound®
Imaging and Data Acquisition Solutions

LEGION DAQ128

Compact, High Channel Count Data Acquisition Unit with 128 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)
- Upgrade available to enable up to 1024 parallel channels
- Integrated 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)	128
	Preamps	1
	Channels per Preamp	128
ADC	**Programmable Gain** (2)	12 to 51 dB
	Bandwidth @ -3 dB (3)	50 kHz to 12.5 MHz
	Resolution	12-bit
	Sampling Rate	40 MSPS
	Max Trigger / Frame Rate (4)	480 Hz / fps
	Max Points (5)	4096
Preamp	**Amplification** (6)	40 dB
	Input Impedance (7)	39 kΩ
	Output Impedance	50 Ω
	Bandwidth @ -3 / -6 dB (8)	40/25 kHz to 30/35 MHz

(1) Upgradeable to 1024 parallel channels

(2) 12 to 45 dB MODE2 available.

(3) Low Pass programmable filters available. 50 kHz to 25 MHz MODE2 available.

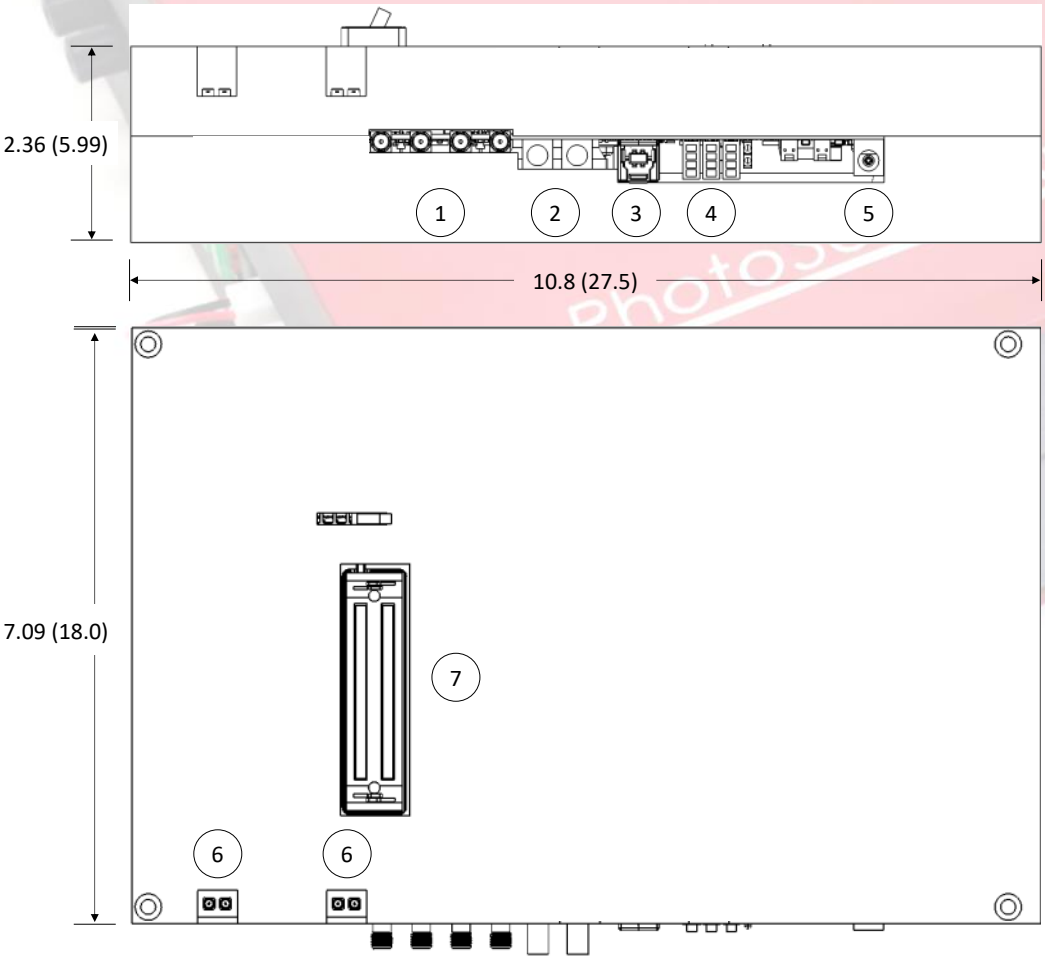
(4) Max frame/trigger rate can be higher depending on PC specs. Max rate limited up to 2 boards connected in parallel.

(5) Per frame per channel

(6) 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.

(7) HiZ is the best to minimize noise at high frequencies.

(8) Measured using signal generator and oscilloscope with 50Ω input.



All dimensions approximate in inches (cm).

1. Two sets of programmable electrical trigger input and output (isolated SMA connectors)
2. Two optical trigger inputs for connecting 2 mm patch fibers allow precise triggering from the end-user's pulsed lasers
3. USB 3.0 port for high data transmission to end-user or PhotoSound provided computer
4. Status and diagnostic LEDs
5. 12VDC 5A (power supply included)
6. MMCX analog IO connectors for preamplifier testing (2 extra preamplifier channels per board not wired to ADC).
7. 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.**

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

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