

Tunable Laser Excitation Source		
<b>Wavelength Range [nm]</b>	460 - 1300	<i>Single output, continuous tuning</i>
<b>Pulse Width [ns]</b>	3 - 5	<i>FWHM</i>
<b>Linewidth [cm-1]</b>	< 10	
<b>Repetition Rate [Hz]</b>	20	
<b>Pulse Energy [mJ]</b> <i>before fiber bundle transmission</i>	> 130 mJ @ 700 nm > 10 mJ @ 500 nm	
<b>Pulse Energy Fluctuations [%]</b>	< 2	<i>StDev</i>
<b>Energy meter</b>	<i>Real-time pulse energy measurements stored in data header</i>	
<b>Fast wavelength switching</b>	<i>Change to any wavelength between 460 - 1300 nm every 50 ms</i>	
<b>Dimensions [in (cm)]</b>	26.5 (67.2) x 17.1 (43.4) x 34.9 (88.7)	
<b>Weight [lbs (kg)]</b>	150 (68)	
<b>Input Power</b>	208 or 240 V 10 A 50 / 60 Hz	

Excitation Fiberoptic Bundle		
<b>Input / Output Configuration</b>	1:4 Circular/Linear	<i>Over 1000 individually randomized fibers</i>
<b>Axial Excitation Spot Size [mm]</b>	30 (50, 80)	standard (optional)
<b>Length [m]</b>	2	

Photoacoustic Detector		
<b>Configuration</b>	Curve-linear array	<i>Cylindrical focusing</i>
<b>Number of Elements</b>	96	<i>No dead elements, 69,000 detection points per scan</i>
<b>Element Size [mm<sup>2</sup>]</b>	1.3 x 1.3	<i>Measured along centerline</i>
<b>Element Pitch [mm]</b>	1.4	
<b>Active angular aperture [deg]</b>	118	
<b>Radius of Curvature [mm]</b>	65 ± 2	
<b>Central Frequency [MHz]</b>	6 ± 10%	<i>T/R measurements, Optimized sensitivity in receive mode</i>
<b>Bandwidth @ -6 dB [%]</b>	≥ 55	T/R measurements
<b>Acoustic Matching</b>	water	<i>1.5 MRayl</i>
<b>Transducer Material</b>	PEEK	<i>Housing is connected to ground to prevent RF noise pickup</i>
<b>Utilization</b>	<i>Continuous immersion under 0.5 m of water between 10 and 40°C</i>	
<b>Shielding</b>	<i>Metalized inside, partially metalized outside (e.g. flash of gold)</i>	

### Fluorescence Emission Filters

<b>Optical Filter Wheel</b>	Motorized	<i>USB 2.0 PC connection</i>
<b>Clear Aperture [mm]</b>	25	
<b>Standard Optical Filter Emission Ranges [nm]</b>	8 filters covering emission range between 483 nm and 850 nm, 1 blocked, 1 open, and 1 custom slots	

### Fluorescence Detector

<b>Detector Type</b>	Back-illuminated sCMOS	<i>High sensitivity cooled scientific camera</i>
<b>Bit Depth</b>	16-bit	
<b>Number of Pixels</b>	2048 x 2048	
<b>Pixel Size [µm]</b>	6.5 x 6.5	
<b>Quantum Efficiency [%]</b>	20 - 95	<i>200 - 1000 nm spectral range, 95% @ 600 nm</i>
<b>Readout Noise [e-]</b>	1.2	<i>Low readout noise for high frame rate applications</i>
<b>Dark Current [e-]</b>	<0.01	<i>For 50 ms or shorter exposures</i>
<b>Dark Signal Nonuniformity [e-]</b>	0.2	
<b>Max Frame Rate [fps]</b>	35	<i>Full resolution</i>
<b>Cooling [°C]</b>	-15	<i>Peltier cooling</i>
<b>PC Connection</b>	USB 3.0	

### LEGION™ ADC Data Acquisition Unit

<b>Channels</b>	256	
<b>Programmable Gain [dB]</b>	46 - 91	
<b>Analog Bandwidth</b>	40 kHz - 25 MHz	
<b>Resolution</b>	12-bit	
<b>Sampling Rate [MSPS]</b>	40	
<b>Min Input Impedance [MΩ]</b>	1	
<b>Max Frame Rate [Hz]</b>	200	<i>With max points, e.g. 400 Hz using 128-channels only or 2048 points/frame/channel</i>
<b>Max points / Frame / Channel</b>	4096	
<b>Trigger Connections</b>	<i>2x SMA Electrical / 2x Optical</i>	

### Control Station (typical specs are provided, subject to change without notice)

<b>Form Factor</b>	Desktop	<i>MidTower or Mini ITX case with handle</i>
<b>Processor</b>	Intel i5 or AMD Ryzen 5	<i>65 W typical</i>
<b>Graphics</b>	GeForce 2070+ or 3060+	<i>220 W typical</i>
<b>Memory</b>	16+ GB	
<b>Storage</b>	1+ TB SSD	<i>M.2 NVMe PCIe SSD</i>
<b>Imaging Monitors</b>	<i>Two 2k Monitors, resolution 1920x1080</i>	
<b>Operating System</b>	<i>Microsoft Windows 10 Pro 64-bit</i>	
<b>Imaging Software</b>	<i>Advanced TriTom Imaging Suite (multimodality 3D imaging, molecular spectral imaging); 3D Slicer visualization &amp; image analysis</i>	
<b>Dimensions [in (cm)]</b>	14.8 (37.5) x 7.83 (19.9) x 12.3 (31.2)	
<b>Weight [lbs (kg)]</b>	20 (9.1)	