



SIDEKICK™

QUANTUM CASCADE LASER CONTROLLER

SideKick is a next-generation design that builds on the field-proven success of our TLC/FLC control electronics. SideKick supports Daylight's broad range of external cavity quantum cascade laser (ECqCL™) systems^[2], functionality, and QCL wavelength selection. SideKick represents a significant evolution in controller features and performance, and is compatible with all Daylight's 31/41xxx tunable and fixed-wavelength laser heads^[2]. SideKick allows flexible, high-precision and high-stability control of laser: output power; wavelength; temperature; scan speed (to $>5000\text{s cm}^{-1}/\text{s}^{[3]}$); pulse width, repetition rate and duty cycle (up to $1\ \mu\text{s}$, 3 MHz and 30% respectively)^[3,4]. And all while protecting your gain chip with Daylight's proven High-Fidelity Quantum Cascade Drive (HFQD™) circuitry.

Signal-to-Noise is critical in most MWIR applications, and laser performance is only as good as controller performance. Recognizing this, SideKick's design emphasizes low noise and, when paired with a suitable laser head, produces extremely low RIN^[5]. With a compact form factor and USB/Ethernet connectivity, SideKick is ideally suited to OEM integration and laboratory use. The included GUI^[6] and SDK provide elegant local/remote control, error messaging, and also allow

user-programmable tuning, swept scans, step-and-measure scans, and multiple triggering modes. With a SideKick in your Daylight laser system, you'll find your mid-infrared applications easier than ever before. Just connect SideKick to your PC, laser head and go!

HIGHLIGHTS

- OEM or laboratory use
- Supports CW or pulsed laser operation
- Integrated laser power, tuning, and temperature control
- Ultra-low current noise enables ultra-low optical RIN
- USB/Ethernet connectivity with GUI and SDK included for robust local/remote control
- Field-tested HFQD circuitry for chip protection
- Remote diagnostics and error messaging for rapid troubleshooting

COMPACT, LOW NOISE CONTROLLER

SIDEKICK SPECIFICATIONS

PERFORMANCE SPECIFICATIONS^[1]

Modes of Operation	Pulsed, CW, CW-Mode-Hop-Free
Compatibility	31xxx/41xxx tunable & fixed- λ laser heads ^[2]
Tuning Modes	Set wavelength, uni- and bi-directional scans, step and measure, start/stop scan ^[3]
External Interfaces	USB 2.0, Ethernet 10/100
Control Interfaces	GUI and SDK command set (included)

ELECTRICAL PARAMETERS

Current Accuracy	0.75% of requested current
Current Precision	1 mA
Pulse Width ³	40 ns to 1 μ s ^[3,4] , 20-ns steps
Pulse Repetition Rate ³	0.1 kHz to 3 MHz
Maximum Duty Cycle	10% (option: up to 30% – please inquire) ^[3,4]
Temperature Adjust	± 5 °C programmable
Scan Speed	> 5000 cm^{-1}/s (max.), 0.5 cm^{-1}/s (min.) ^[3]
Triggered	Internal clock, external trigger (External Pulse, External Trigger)
Trigger Input	TTL
Current Modulation	Not included (applied direct to laser head) ^[3]
Input Power	90–264 VAC, 47–63 Hz with included AC-DC Power Supply (or <3 A, 22–30 VDC)
Cooling	Passive air, no fans ^[4]
Regulatory Compliance	CDRH, CE ^[3]
Temperature Range	10–40°C (operation); -20–60°C (stored)
Humidity	0–80% RH, non-condensing
Size	Sidekick: 7.3 x 5.2 x 1.4 ins (18.5 x 13.2 x 3.5 cm) Power Supply: 2.7 x 5.2 x 1.6 ins (6.9 x 13.2 x 4.1 cm)

^[1] All specifications are: defined after a 10-minute warm up; subject to change without notice.

^[2] Not compatible with 11/21xxx laser heads, which require designated TLC/FLC controllers.

^[3] Requires suitable laser head and/or gain chip - please inquire.

^[4] Laser operation above 10% duty cycle requires a suitable QCL chip and may require supplemental cooling of the laser head - please inquire.

^[5] Typical RIN as low as -150 dBc/Hz was measured in the range of 400 kHz to 1 MHz using SideKick with a TLH-41060-MHF laser head.

^[6] GUI compatible with Windows® 7, 8.1 & 10. Please inquire for other OS.