



SideKick Controller.  
Power supply not shown.

# SIDEKICK™ QCL CONTROLLER

## MULTI-FUNCTION, QCL CONTROLLER WITH INDUSTRY LEADING NOISE PERFORMANCE

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<sup>[2]</sup>, 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<sup>[2]</sup>. SideKick allows flexible, high-precision and high-stability control of laser: output power; wavelength; temperature; scan speed (to  $>5000 \text{ cm}^{-1}/\text{s}$ <sup>[3]</sup>); pulse width, repetition rate and duty cycle (up to  $1 \mu\text{s}$ , 3 MHz and 30% respectively)<sup>[3,4]</sup>. 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<sup>[5]</sup>. With a compact form factor and USB/Ethernet connectivity, SideKick is ideally suited to OEM integration and laboratory use. The included GUI<sup>[6]</sup> 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<sup>[1]</sup>

Modes of Operation	Pulsed, CW, CW-Mode-Hop-Free
Compatibility	31xxx/41xxx tunable & fixed- $\lambda$ laser heads <sup>[2]</sup>
Tuning Modes	Set wavelength, uni- and bi-directional scans, step and measure, start/stop scan <sup>[3]</sup>
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 <sup>3</sup>	Supports 40 ns to 10 $\mu$ s <sup>[3,4]</sup> , 20-ns steps
Pulse Repetition Rate <sup>3,4</sup>	Supports 0.1 kHz to 3 MHz
Maximum Duty Cycle	10% (option: up to 30% – please inquire) <sup>[3,4]</sup>
Temperature Adjust	$\pm 5$ °C programmable
Scan Speed <sup>3</sup>	Supports > 30,000 $\text{cm}^{-1}/\text{s}$ (max.), 0.5 $\text{cm}^{-1}/\text{s}$ (min.) <sup>[3]</sup>
Triggered	Internal clock, external trigger (External Pulse, External Trigger)
Trigger Input	TTL
Current Modulation	Not included (applied direct to laser head) <sup>[3]</sup>
Input Power A, 22–30 VDC)	90–264 VAC, 47–63 Hz with included AC-DC Power Supply (or <3
Cooling	Passive air, no fans <sup>[4]</sup>
Regulatory Compliance	CDRH, CE <sup>[3]</sup>
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)

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

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

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

<sup>[4]</sup> Laser operation above 10% duty cycle and/or 3 MHz repetition rate requires a suitable QCL chip and may require supplemental cooling of the laser head - please inquire.

<sup>[5]</sup> 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.

<sup>[6]</sup> GUI compatible with Windows® 7, 8.1 & 10. Please inquire for other OS.

COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER  
NOTICE NO. 50, DATED JUNE 24, 2007. COMPLIES WITH IEC 60825-01

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REV 3-2018