

SYNRAD Technical Bulletin

0008

Technical Issue: Initial Pulse Characteristics of Rev C Firestar v30 Lasers

Date: 16 May 2006

Description:

In response to customer requests, SYNRAD recently introduced a Rev C version of the Firestar v30 laser. The v30's Rev C RF board provides improved pulsing characteristics in order to achieve the best operating performance possible in a small, compact laser package.

Under normal operating conditions, Firestar v30 Rev C lasers draw between 14 to 16 amps at 30 VDC with a "worst-case" current specification of 18 A maximum. However, these Rev C boards may draw currents up to 28 amps maximum during the first PWM pulse. The amperage demand tapers off during consecutive pulses so that normal operating current is restored within one (1) millisecond (ms). See Figure 1 for details.

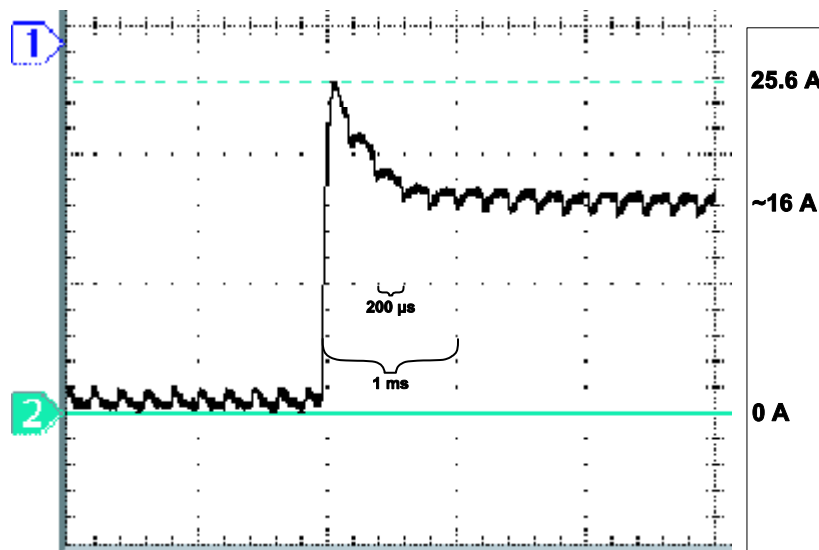


Figure 1 – v30 Rev C Initial Pulse Characteristics at 99% Duty Cycle

A problem occurs if the laser's DC power supply cannot supply a maximum current of 28 A under transient conditions. In these cases, the DC power supply may enter an automatic current-limiting state that reduces the available output voltage to prevent the DC supply from exceeding its designed output wattage. Although the output voltage drop should fully recover when the current demand decreases, it is possible that some DC power supplies will not recover. This means that the v30 laser will not receive the full 30 VDC input voltage required to properly drive the laser and poor performance or improper operation may result.



Corrective Action:

Effective immediately, we are amending DC power specifications for our Rev C v30 lasers:

V30 Input Specifications, Rev C
Power Supply

Voltage.....30 VDC

Current.....18 A, 28 A peak for 1 ms minimum

To support our v30 lasers, SYNRAD sells the DC-2 DC power supply, a 750 W supply that is capable of providing 25 A max at an output voltage of 30 VDC. The DC-2 has a current limit rating of 120%, which means that under **very-short transient conditions** the DC-2 can supply 120% of its rated output current or a total of 30 amperes at 30 VDC.

For best results when operating a Firestar v30 Rev C laser, SYNRAD recommends a DC-2 or similar power supply or a supply with a rated output of 840 W or above at an output voltage of 30 VDC.

Important Note: This information presented in this Technical Bulletin refers only to v30 Rev C lasers.

For further information contact SYNRAD at 1.800.796.7231; outside the U.S., dial +1.425.349.3500 or fax us at +1.425.349.3667.